NATIONAL ZOOLOGICAL PARK, BIRD HOUSE
3001 Connecticut Avenue NW
Washington
District of Columbia

HABS DC-777-D
DC-777-D

PHOTOGRAPHS

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FIELD RECORDS

HISTORIC AMERICAN BUILDINGS SURVEY
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001

HISTORIC AMERICAN BUILDINGS SURVEY

NATIONAL ZOOLOGICAL PARK, BIRD HOUSE

HABS No. DC-777-D

Location: 3001 Connecticut Avenue, NW, Washington, D.C.

The front entrance vestibule of the Bird House at the National Zoological Park is located at 38.929756 N, 77.051875 W, and the Great Flight Cage, or outdoor flight exhibit area, is located at 38.929356 N, 77.052483 W. Both coordinates were obtained on March 10, 2010, using Google Earth and the datum for both is North American Datum 1983. The Bird House's location has no restriction on its release to the public.

Present Owner/
Occupant: Smithsonian Institution, National Zoological Park.

Present Use: Exhibit space for the National Zoological Park's collection of birds.

Significance: Although part of the National Zoological Park's early collection, birds lacked a permanent, and proper, habitat for many years. There was no one place for visitors to view the various species; exhibits were scattered throughout the Zoo with the eagle cage and a temporary bird house in amongst the other animal houses at the center of the grounds and the flight cages at the northwestern end of the Zoo's land. Secretary of the Smithsonian Institution Samuel P. Langley wanted the exhibits grouped together, dictating as much to Park Superintendent Frank Baker in 1902, but it was not until the late 1920s that his vision came to fruition.[1] In this interval, the temporary bird house designed by the firm Hornblower and Marshall proved inadequate, failing structurally since it was not built to last and becoming overcrowded. Municipal Architect Albert Harris provided plans for a bird house and funding for the new structure was awarded in 1926. Construction began shortly thereafter. The Bird House was built near the 1901 flight cage, as Langley had wished, and the birds' temporary quarters demolished to make way for a reptile house (1929-31).

With the completion of the Bird House in 1928 under the leadership of the then Zoo Director Dr. William M. Mann and Municipal Architect Albert Harris, the Zoo deliberately modernized how it displayed its collections and how it cared for them while simultaneously, and no less self consciously, remade its image through architectural expression. The Bird House is a departure from the picturesque vision of Secretary Langley who sought advice from Frederick Law Olmsted and W.R. Emerson as he charted the course the fledgling National Zoo would take. Mann abandoned the rustic in favor of vigorous architectural projects to demonstrate that the National Zoo was worthy of its name and was in sync with zoological parks on the international scene. Although Mann's ambitions for the Zoo were shared by his successors, their building programs differed. The Bird House and those structures erected during the 1930s represent a distinct era in the Zoo's history wherein grand scale was matched by a refinement of detail, and the robustness of the architectural presence of the animal houses symbolic of the very health of the Zoo itself.

Historian: Virginia B. Price, HABS, 2009-10.

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[1] Samuel P. Langley to Frank Baker, 19 June 1902, cited in Gavin Farrell, "Smithsonian Institution National Zoological Park: A Historic Resource Analysis," Report for the Office of Architectural History and Historic Preservation, September 2004, 125, and note 7.

Project Information: The recording project was jointly sponsored by the Smithsonian Institution, National Zoological Park, and by the Historic American Buildings Survey (HABS) branch, Catherine C. Lavoie, Chief, of the National Park Service's Heritage Documentation Programs, Richard O'Connor, Manager. Project planning was guided by Catherine Lavoie and Mark Schara of HABS and Timothy Buehner, Architect, National Zoological Park. The field measurements and measured drawings were completed by HABS Architects Mark Schara, Paul Davidson, Alexander Matsov, and Daniel De Sousa. The 3-D model was drawn by Jeremy Mauro, HAER architect. Large format photography was completed by Renee Bieretz, HABS/HAER Photographer.

The author would like to thank the following people for their help with this project: Amy Ballard, Architectural History and Historic Preservation Office, Smithsonian Institution; Polly Lasker, Librarian, Smithsonian Institution, National Zoological Park; Nancy Hadley, Archivist, American Institute of Architects; Michele Clark, Olmsted Archives, Olmsted National Historic Site; Kay Fanning, Historian, Commission of Fine Arts; William Branch, Archivist, Office of Public Records/DC Archives; Ali Rahmaan, Archivist, Office of Public Records/DC Archives; Tara C. Craig, Reference Services Supervisor, Rare Books and Manuscript Library, Columbia University; and Catherine C. Lavoie, Chief, HABS.

Part I. Historical Information

A. Physical History

1. Date of erection: 1928, 1935-37.

2. Architect: Albert Harris (1928); Edwin Clark (1935-37).

Albert Harris (1869-1933) was the Municipal Architect for the District of Columbia for twelve years and it was in this capacity that he provided designs for the Bird House at the National Zoological Park.[2] Legislation in 1912 regarding the administration and funding of the National Zoo placed the design and construction of buildings under the auspices of the city and the city's architect while bridge design was under the purview of the engineer's office.[3] The line of distinction between what

[2] The National Register nomination states that the "initial plan for the bird house was done by Howland Russell" and completed by Harris, whereas minutes of the Commission of Fine Arts note that Bertram Russell, an architect who spent several months in the Zoological Park studying the plan, prepared a design. The minutes go on to say that the plan was made in consultation with Harris, likely meaning the overall study of the Zoo undertaken by Russell. Harris prepared the drawings for the Bird House and presented the building plans to the Commission. Russell's preliminary proposal (with Harris) must be that Assistant Secretary of the Smithsonian Alexander Wetmore referred to in his letter to Horace Peaslee, "… in the matter of preparing plans for a bird house in the National Zoological Park there is no option as to the choice if an architect, Congress having required for some years past that plans for buildings in the Park shall be prepared by the Municipal Architect. […] The Municipal Architect has preliminary plans in hand which have been approved, with certain suggested changes by the Fine Arts Commission, and it is expected that work on the final plans will be under way soon." [emphasis mine]. Wetmore to Peaslee, 6 August 1926, cited in Farrell, 126, note 9; Minutes of the Meeting of the Commission of Fine Arts 7 January 1926, 7-8, Commission of Fine Arts (CFA), Washington, DC; Leonard H. Gerson, Urban Historian, NCPC, preparer, "National Zoological Park," Nomination 1973, National Register of Historic Places, National Park Service, sec. 7.

[3] This remained in effect until June 1966 when the "functions of the Board of Commissioners of the District of

the federal government paid for and what fell to the city was clear and appropriation bills for the National Zoo specifically omitted fees for architectural advice and plans. Harris's office also designed many school buildings and firehouses for the District. Before his appointment as Municipal Architect in 1921, Harris worked for the firm Hornblower and Marshall. Harris's connection to Hornblower and Marshall provided him with an understanding of the Smithsonian since the firm designed the National Museum of Natural History in 1910; it also afforded him insight into the on-going needs of the National Zoo since the firm designed some of the Zoo's early structures and worked on others, such as the Holt House, in concert with both Secretary Samuel P. Langley and Park Superintendent Frank Baker. Harris was elected to membership in the American Institute of Architects (AIA) in 1920 and became a Fellow in 1923.[4]

Edwin Hill Clark (1878-1967) went to Yale University and studied in Paris after his graduation in 1901. By 1906 he was in private practice in Chicago with William Otis. By the 1920s, he partnered with Chester H. Walcott, and several of their designs were published in 1922. That year the firm designed the Aquarium for the Lincoln Park Zoo; Clark went onto become the architect for the zoological park in Brookfield. His work there received due notice in *Architectural Record* (1934), and likely is what brought him to the attention of the National Zoo's Director, Dr. William Mann.[5]

Clark had been a member of the Chicago Chapter of the AIA at least since 1928, and by 1939 was on the Board of Art Advisors for the state of Illinois. In addition to projects in zoological parks, Clark's firm designed several large estates in the suburbs north of Chicago. The firm also participated in the 1933-34 Century of Progress exposition, authoring several building designs.[6]

Columbia which were vested in the municipal architect of the District of Columbia by the provisions of the Act of August 24, 1912, ch. 355, 37 Stat. 437 (20 USC 84; DC Code 8-134), in respect of buildings of the National Zoological Park, and all functions of that Board which were vested in the engineer of bridges of the District of Columbia by those provisions in respect of bridges of the National Zoological Park, are hereby transferred to the Smithsonian Institution." Message from the President of the United States transmitting Reorganization Plan No. 4 of 1966, …, copy in RU 365 National Zoological Park, Office of Public Affairs, 1905-88, box 36, Smithsonian Institution Archives (SIA), Washington, DC; see also 06-225 Office of Architectural History and Historic Preservation, Building Files, box 50, SIA.

[4] Nancy Hadley, Archivist and Records Manager, American Institute of Architects (AIA), to Virginia B. Price, electronic communication, 2 October 2009. The author thanks Nancy Hadley for her assistance and for sharing information on file about Harris. James A. Jacobs, "To Close Garnet-Patterson Would Be Like Destroying a Family Structure," unpublished paper, 1999, personal copy shared with author. This paper highlights one of Harris's school buildings and so provides insight into his design work beyond that requested for the Zoo. Reference notes also indicate materials on file at the Sumner School in D.C. contain some information about Harris, as well as entries on Harris in *Federal Architect* 5 (1935): 7-11 and *National Cyclopedia of American Biography* 24 (1935): 165-66. Obituaries for Harris in the *Washington Post* and *Evening Star* newspapers also pay tribute to his accomplishments as the Municipal Architect. Files for the Municipal Architect in the records of the Commission of Fine Arts at the National Archives contain several clippings, one of which outlines a reorganization that resulted in a pay cut for Harris in 1932. No other information on Harris was included in the file. See clipping, *Evening Star*, 29 January 1932, General Files, 1910-54, District of Columbia Municipal Architect, Commission of Fine Arts (CFA), RG 66, National Archives Building (NAB), Washington, DC. For a synopsis of Hornblower and Marshall's work at the Holt House, see HABS No. DC-21.

[5] *Architect* (December 1923): 79-80; *Western Architect* 31 (October 1922): 117, pl. 1-12; "Chicago Zoological Park," *Architectural Record* 76 (December 1934): 419-28; Andrea Friederici Ross, *Let the Lions Roar!: The Evolution of Brookfield Zoo* (Chicago Zoological Society, 1997), 25.

[6] Nancy Hadley, Archivist and Records Manager, AIA, to Virginia B. Price, electronic communication, 29 November 2006. The author thanks Nancy Hadley for her research assistance, particularly for locating the biographical file maintained by the AIA for Clark. See also the Art Institute of Chicago (AIC) library for a biographical summary of Clark; the library at the Art Institute has several of Clark's diaries in its collection as well as several photographs of the buildings at Lincoln Park. For example, Clark's diary records his visit to Washington, D.C., on 21-22 January 1935,

For the National Zoo, Clark provided designs for the completion of the Bird House, for the house for pachyderms (see HABS No. DC-777-C), and the small mammal house.

3. Original and subsequent owners, occupants, uses: The Bird House is a purpose-built structure designed and erected by the Smithsonian Institution, National Zoological Park for the display of birds.

4. Builder, contractor, suppliers: For the initial construction campaign in 1927-28, the Municipal Architect for Washington, DC, Albert Harris, awarded the contract for building the Bird House to "the firm Albert L. Smith."[7] It is possible that W.H. Silpath Tile Company was responsible for the tilework in the Bird House; it was at the company's behest that Theodor Horydczak took several pictures of the building including two of the interior.[8] Bahen and Wright Contractors also worked on the building, constructing the cages around the new Bird House. They requested in March 1929 that the first coat of paint be inspected, suggesting significant progress on their part of the project. [9] United Clay Products Company in Morrison, Virginia, supplied the Booker Colonial Sand face brick.[10]

Work on the second phase of construction, or the addition along the south side of the building, was done under the auspices of the Public Works Administration, through which the project was funded, and with labor and materials procured through the Emergency Works Administration beginning in 1935. District officials with the EWA were Captain Howard F. Clark and William C. Cleary.[11] The contractor selected for the project was Charles H. Tompkins Company of Washington, DC.[12] William A. Miller served as the Construction Engineer; he was assisted by N.P. Greller who was relieved by H.R. Leslie.[13] The expansion of the Bird House – or its belated completion – was

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wherein he met with William Mann of the Zoo and Louis A. Simon of the Supervising Architect's Office of the U.S. Treasury regarding drawings for the Zoo.

[7] *Annual Report of the Board of Regents of the Smithsonian Institution… 1927* (Washington, DC: GPO, 1928), 107; *Annual Report of the Board of Regents of the Smithsonian Institution… 1928* (Washington, DC: GPO, 1929), 109.

[8] [Interior of the Bird House, National Zoo], Theodor Horydczak Collection, Prints and Photographs Division, Library of Congress. See http://hdl.loc.gov/loc.pnp/thc.5a418054 and http://hdl.loc.gov/loc.pnp/thc.5a41805.

[9] Bahen and Wright Contractors to A.L. Harris, 21 March 1929, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 48, SIA. This includes earlier correspondence between Mann and the inspecting engineer, L.H. Browne, about Bahen and Wright receiving the contract and about their payment schedule. Additional correspondence, dating to November 1928, documents their work at the site. 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[10] Minutes 15 September 1927, 7, CFA.

[11] *Annual Report of the Board of Regents of the Smithsonian Institution… 1935* (Washington, DC: GPO, 1936), 54-55.

[12] Charles H. Tompkins Company letterhead indicates their office was on Connecticut Avenue and that they were "constructing engineers." Records of their progress on the Bird House, including approval of materials and alterations to the plans (such as when the radiators in the upper wall conflicted with the operators of the skylights) are filed with the Treasury Department, Public Buildings Service. See National Zoological Park, Bird House, General Correspondence and Related Records, 1910-39, Public Buildings Service, RG 121, NACP. Presently the Bird House files are in boxes 3020-21.

[13] William A. Miller, Office of the Construction Engineer, to H.S. McAllister, District Engineer, 2 March 1937, National Zoological Park, Bird House, General Correspondence and Related Records, 1910-39, Public Buildings Service, RG 121,

substantially finished in November 1936, as Zoo Director William Mann proudly proclaimed in his *Annual Report*. Work included the artistic program for the interior that featured murals or "scenes representing various geographical regions" along the back of the cages. The Treasury Relief Art Program (TRAP)[14] allowed for decorative work in the Bird House, such as the mural paintings in the exhibit cages that Mann mentioned as well as murals in the lunettes over two doorways.[15]

Artists associated with the Bird House are Stephen Haweis (1877-1969), Domenico Mortellito (1906-94), John Joseph Earley (1881-1945), and Elizabeth Fulda (1879-1968). Mortellito and Fulda were both based in New York City at the time and their work was funded through the Treasury Relief Art Program (TRAP).[16]

Stephen Haweis, a painter and amateur naturalist, befriended Zoo Director Dr. William M. Mann and this affiliation led Haweis to create a colorful mosaic for the main entrance to the Bird House. Haweis incorporated exotic birds and plants into his design, a subject and style of expression in keeping with known examples of his work. His paintings have been described as having "movement" and a "reflective and delightful appeal of color…" while his oeuvre ranged between the representational to Cubist. Haweis said his paintings were instead "expressions of what remains in the memory of any given moment or place" meaning that he preferred "faithful impression" as a descriptor rather than the better-known classifications of impressionism or Cubism.[17] For the Bird House, Haweis's entrance with its use of color, geometric patterns, and images of birds fits well within the idea of a faithful impression, hinting at what zoo-goers would see there, and more broadly, suggestive of the impetus behind Mann's architectural program.

NACP.

[14] Part of the New Deal programming to mitigate the effects of the Great Depression, the Treasury Relief Art Program (TRAP) was directed toward unemployed artists. TRAP provided work relief by commissioning art to decorate Federal buildings, such as those at the National Zoo, without dedicated funds for art in their budgets. In sum, TRAP financed eighty-five murals and thirty-nine sculptures, plus over ten thousand easel works. TRAP was created by a grant from the Works Progress Administration (WPA) to the Treasury Department in 1935 and was extended until 1938. At that time, the WPA Federal Art Program picked up the artists remaining on the TRAP relief roll. Olin Dows initially directed the program. He was succeeded by Cecil Jones. Under Dows and Jones, TRAP collaborated with the Painting and Sculpture section of the Treasury. Concern for the quality of the art produced under the auspices of the program meant in practice a master artist, such as Charles Knight who worked on the Elephant House, won the commission and artists on the relief rolls served as project assistants. From December 1935 through 1938, 75 percent of the artists paid through TRAP had to come from the relief rolls. Originally that percentage was ninety. See http://www.museum.siu.edu/museum_classroom_grant/Museum_Explorers/virtual/treasury.htm, accessed 18 March 2010.

[15] *Annual Report of the Board of Regents of the Smithsonian Institution… 1937* (Washington, DC: GPO, 1938), 70; 06-225 Office of Architectural History and Historic Preservation, Building Files, box 50, SIA. A photograph taken by Theodor Horydczak of the interior shows one of the lunettes painted by Mortellito; see [Interior of the Bird House, National Zoo], Theodor Horydczak Collection, Prints and Photographs Division, Library of Congress (to view the image, which is under copyright so not reproduced here, see http://hdl.loc.gov/loc.pnp/thc.5a41805).

[16] Files for Mortellito and Fulda are among the records of the Public Building Service at the National Archives (Public Buildings Service, Treasury Relief Art Program, RG 121-TR, National Archives and Records Administration, College Park (NACP).

[17] "Stephen Haweis," artist files, Smithsonian American Art Museum (SAAM) Library, Smithsonian Institution, Washington, DC; 06-225 Office of Architectural History and Historic Preservation, Building Files, box 48, SIA.

Haweis was English, but studied art in Paris. In France, he came under the influence of artists like Alphonse Mucha, Auguste Rodin (for whom Haweis took photographs), Eugene Carriere, Constantin Meunier, and the American-born painter, James McNeill Whistler. Only when Haweis left Paris in 1913 (settling for awhile in the Bahamas) did his style of painting shift. He married fellow artist Mina Loy, but they divorced in 1917. Haweis moved to Dominica after the stock market crash in 1929.[18]

Haweis apparently had a sense of humor for it is often told how he teased Mann about his commission for his work at the Bird House. He claimed it was done for fame and fortune, only to see his hopes dashed when his name was misspelled and placed upside down in the piece.[19]

Less is known about Domenico Mortellito, the mural painter and sculptor who worked on several of the WPA-era buildings at the National Zoo.[20] He painted murals as "habitant backgrounds" in the Elephant House and in the Bird House (figs. 1-2). He used a rubber-based paint for the interior murals and a lacquered linoleum for the two overdoor lunettes. His initials are carved in the colored concrete panels, depicting the Maori and moas in one panel and dodo birds in another, on the exterior (figs. 3-4).[21] His murals for the restaurant were "washable" and were crafted out of linoleum.[22]

Mortellito's experimentation with new mediums culminated in his creation of sculptural murals in a rigid urethane he called "artfoam." This was facilitated by his work for DuPont as an artist, designer, and consultant for the company. Before his years at DuPont (which began in 1945) and his contributions to the artistic program at the National Zoo, Mortellito attended the Newark School of Fine and Industrial Arts and the Pratt Institute where he was recognized as the "best all around student for three years" in 1926.[23] After graduation, Mortellito went to New York and "joined the

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[18] See biographical summary prepared by Columbia University for the finding aid to the Haweis papers; Stephen Haweis Papers (1860-1969), Rare Books and Manuscript Library, Columbia University, New York. (http://www.columbia.edu/cu/lweb/eresources/archives/rbml/Haweis/, accessed 18 March 2010).

[19] "Zoo Art," pamphlet copy in 06-225 Office of Architectural History and Historic Preservation, Building Files, box 48, SIA.

[20] In September 1936 whether or not the walls of the east and west cages in the new wing should be plastered and painted or left bare for mural paintings was discussed. Plans for the murals were changed so the contractors finished out the spaces as originally specified. Likely, then, Mortellito's work on the Bird House was delayed. Var. memos, September 1936, National Zoological Park, Bird House, General Correspondence and Related Records, 1910-39, Public Buildings Service, RG 121, NACP. The two bas-relief, aluminum panels of the Pied Piper were for the small rodent house. "Restaurant and Murals," 06-225 Office of Architectural History and Historic Preservation, Building Files, box 50, SIA. Pictures of these panels are on file at PBS, TRAP, RG 121-TR, NACP.

[21] The panels have been described as "blue and white ceramic" and as "blue and white plaster cement" at various times. See 06-225 Office of Architectural History and Historic Preservation, Building Files, boxes 48, 50, SIA. Pencil sketches for the panels are available in National Zoological Park, Bird House, Project Files, CFA, RG 66, NAB.

[22] 06-225 Office of Architectural History and Historic Preservation, Building Files, boxes 48, 50, SIA. Folders about art at the Zoo as well as the restaurant murals are relevant here. In July 1988 Mortellito corresponded with Charlene Heeter, a Fine Arts Specialist, about the New Deal programs and the status (or whereabouts) of his work.

[23] "Domenico Mortellito," artist files, SAAM. For background information on the Italian community in Delaware, where Mortellito lived for many years, see Patricia Thompson, *Arriving in Delaware: The Italian-American Experience* (Wilmington: The History Store, 1989), as well as other resources available at the Delaware Historical Society. A detailed description of Mortellito's projects, particularly those for DuPont, was compiled for the finding aids to a collection of photographs and

studio of Mack, Jenney and Tyler" until 1932.[24] He worked in frescos and oils, painting architectural murals and ceiling decorations.[25] His work in this genre mostly likely helped to secure the commissions at the National Zoo during the WPA years.

Records show that John Joseph Earley worked on the National Zoo's Reptile House, but only the polychrome cast concrete arches in the cornice suggest his influence on the artistic program for the Bird House today. Earley invented a mosaic concrete, explaining to the Commission of Fine Arts in 1927 that "the process of making the colored concrete, of the exposed aggregate type [… consisted] of mixing colored glass with cement, filled into an outline previously drawn, with a suitable background in color for contrast." The Commission visited his studio, and it was noted that Earley used glass from Venice and Italian marble in his mixture. Interest in Earley's technique entered into the Commission's discussion of the decorative scheme for the Bird House as they began to evaluate a proposal submitted by Albert Harris, the Municipal Architect, that substituted colored concrete for mosaics. Funding constraints prompted the change in medium, and Harris needed the Commission's approval. The proposal elicited concerns that the colors were "too gaudy" and concerns over the scale of the birds shown in the design. After seeing the studio, and one of the column capitals to be used in the Bird House, the Commission acquiesced.[26]

Earley's experience with the Commission of Fine Arts dates back, at least, to his work in 1915 on Meridian Hill Park when Cass Gilbert was the Chairman. For the walls of Meridian Hill, Earley used the polychrome aggregate concrete, with a finish suggestive of Italian pebble mosaics, that he had been developing for some years. Earley apprenticed in his father's studio, learning stone carving, and after his father's death ran the Earley Studio with Basil Taylor. Notable projects include the main lobby of the Willard Hotel, work at the White House and Department of Justice, the Shrine of the Sacred Heart, the Rosary Portico at the Mount St. Sepulchre Franciscan Monastery, the Thomas Alva Edison Memorial, and the "Polychrome Houses" in Silver Spring, Maryland. The latter were Earley's foray into prefabricated housing and he used precast concrete panels to assemble the houses.[27]

The Treasury Relief Art Program (TRAP) sponsored work by Elizabeth Fulda, in addition to that done by Mortellito in 1937.[28] Elizabeth Fulda carved sculpture reliefs out of zinc; these were placed

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papers at the Hagley Museum and Library. (See Domenico Mortellito Photographs (1939-64) and Domenico Mortellito Papers (1950-79) at www.hagley.lib.de.us/).

[24] That Mortellito, and the firm Mack, Jenney and Tyler, ran out of projects due to the Depression is not hard to imagine; in October 1933, the firm wrote to Louis Simon, the Supervising Architect of the Treasury, requesting that they be considered for decorative painting work in federal buildings then under construction. Mack, Jenney and Tyler, New York, to [Louis] Simon, Office of the Supervising Architect of the Treasury, 30 October 1933, and Jas. A. Wetmore, Acting Supervising Architect, to MJT, 5 November 1933, Painting and Sculpture, 1930-39, General Correspondence and Related Records, 1910-39, Public Buildings Service (PBS), RG 121, NACP. By this time, though, Mortellito was on his own.

[25] These biographical and artistic details were taken from the Hagley Museum and Library's catalogue entries for Mortellito's photographs and papers.

[26] Minutes 15 September 1927, 7, CFA.

[27] Research on prefabricated housing in the Washington area was done for HABS by Catherine C. Lavoie as part of a larger study in the mid to late 1980s. See HABS No. MD-1077 for documentation on Earley's Polychrome House No. 1.

[28] Fulda was on the TRAP rolls from 6 July 1936 to 31 July 1937; Mortellito participated in the program alittle longer, from December 1935 through the end of August 1937. Records (in the Still Pictures reading room) indicate Fulda's work was for the Zoo, and Mortellito's for the Zoo, the Port Chester Post Office, and the Harlem Housing Project. See PBS,

in some of the cages but have since been lost.[29] Notes from the Commission of Fine Arts in August 1936 suggest Fulda was to make glass mosaics for the Bird House; these were panels measuring 9'3" by 5'9" and were to be placed over the two entrance doors. Sketches were submitted for consideration and approval, which was granted at the October meeting of the Commission (figs. 5-6). The mosaics featured birds, albeit of differing scale. Concerns regarding the scale of the figures (birds) were assuaged once the Commissioners learned the panels were to be some 80' apart on the building. Dr. William M. Mann checked the drawings for "naturalistic accuracy."[30] Given the discussion of the sketches by Fulda, plus the location and appearance of the panels, it is possible she drew what Mortellito later carved and the planned glass mosaics were abandoned due to cost.

Fulda was most likely selected for the work at the National Zoo because she had become known as a nature and animal painter by that time. Born in Germany, Elizabeth Fulda was first introduced to painting by her brother, Carl (Karl) Rungius, who was studying art. Fellow artists August Gaul and Richard Friese helped her with her craft; Fulda studied and drew the animals at the Berlin Zoological Garden. After moving to New York City in 1905, she became a fixture at the Bronx Zoo, sketching the animals and ultimately painting murals in the lion house and illustrating William Temple Hornaday's *Tales of Nature's Wonderland*. The Zoo bought two of her paintings as well. In addition to her experience at the Bronx Zoo, and to her growing reputation as an artist, Fulda's work for the Museum of Natural History would have made her an appealing choice for Mann. For the museum she made models and added to her knowledge of animal anatomy, something that would improve the technical aspect of her paintings. She won an award from the National Association of Women Artists in 1953, held several solo shows and featured in many others.[31]

TRAP, RG 121-TR, NACP. A newspaper clipping heralded the art program at the Zoo: "The Zoo, which long ago clinched the title of 'Exhibit A' in the list of Washington buildings being rejuvenated by unemployed artists, underwent another severe inspection yesterday and again emerged with a passing grade. (/) This time the visitors were the 16 regional directors in charge of Public Works of Art project, here for a convention which ends tonight. (/) There have been so many inspection parties, all guided by Director William M. Mann, since the decorative program was begun last December, the animals mope when a day passes without one." See "Zoo's Make-Up Approved by Experts," *Washington Post*, [clipping n.d.], National Zoological Park, Bird House, Project Files, CFA, RG 66, NAB.

[29] Jean F. Sachs, Senior Researcher, Office of Fine Arts & Historic Preservation, GSA, to Sybil Hamlet, Division of Interpretation, memorandum 30 November 1972, re: "Works of Art Installed by the Federal Government in the National Zoological Park, Washington, DC, 1933-43," 06-225 Office of Architectural History and Historic Preservation, Building Files, box 51, SIA. The only other clue to her work for the Bird House comes in a letter dated March 1937 wherein eight of the "bird plates" were returned because Dr. William Mann, Director of the Zoo, felt neither the color nor the form was satisfactory. Mann recommended she "work directly from the birds in the Natural History Museum rather then from illustrations or other reproductions." The plates she was instructed to re-draw were for the Cuban mockingbird, Gray kingbird, Cuban tody, Common grassquit, Melodious grassquit, [zomal?] real thrush, Key West quail dove, and Cuban crow. Henry La Farge, Special Assistant, Treasury Relief Art Project, to Mrs. Elizabeth Fulda, New York, 29 March 1937, National Zoological Park, Bird House, General Correspondence and Related Records, 1910-39, PBS, RG 121, NACP. [note the typescript of the letter referred to the "p" in TRAP as project not program].

[30] Secretary to Mr. Eugene Savage, Ossining, NY, 21 August 1936, Olin Dows, Chief, TRAP, to Charles Moore, Chairman, CFA, 19 August 1936, Savage to Moore, 4 September 1936, and [Moore] to Dows, 3 October 1936, National Zoological Park, Bird House, Project Files, CFA, RG 66, NAB. See also, Minutes 16 September 1936, 11-12, exhibit j, CFA.

[31] Anita Jacobsen, ed. and comp., *Jacobsen's Biographical Dictionary of American Artists*, vol. I, book II (TX: A.J. Publications, 2002), 1159; Peter Hastings Falk, ed., *Who's Who in American Art, 1564-1975*, 3 vols. (Madison, CT: Sound View Press, 1999), I: 1121; "Elizabeth Fulda.," artist files, SAAM. Her obituary ran in the *New York Times* in January 1968; notice of her award appeared in the *Tribune* in May 1953. Clippings of both are in her artist file at SAAM. In addition to painting, Fulda was a sculptor, printmaker, and etcher. Her landscape paintings focused on scenes in the eastern United States, particularly the Ramapo Hills.

5. Original plans and construction: Plans for a new exhibition for birds had long been in the making, and the Zoo's need for a modern aviary became ever more apparent in the mid 1920s. While the great flight cage[32] was cleaned and its steel framework and wire coverings scraped and painted in 1921, and additional outdoor cages were erected in 1922, the Bird House itself was "in a very bad state of repair." Inside, the accommodations were crowded. Spatially the building had insufficient room for birds and people.[33] The directors of the Zoo, Ned Hollister (1917-24) and Dr. William M. Mann (1925-56), lobbied for a proper aviary and outlined their requests in the Smithsonian *Annual Reports*. Their campaign culminated in funding not to exceed $102,000 and Mann received the go-ahead to seek contracts for construction in 1926; in this year, the preliminary plans were presented to the Commission of Fine Arts for approval. The initial idea tried to balance exhibit space with viewing space. Albert Harris, the Municipal Architect, proposed a building with a square footprint so that it could be expanded in a series of ells as necessary. The Commission of Fine Arts suggested restudying the proposal, simplifying the façade, visually integrating the roofline to the piers below, and eliminating the interior elliptical arches.[34] Harris then revised drawings, with particular attention paid to the "detail of the cornice and gable over the entrance," for the Commission's consideration in May 1926. At the May meeting of the Commission, Harris discussed the plans but only one aspect of the conversation was recorded, that concerning the Spanish style of architecture presented in the plans. Harris inquired about the architectural style and if the Commissioners particularly wanted this style to be used. They replied, somewhat evasively, that the building "should harmonize with the place where it is erected, - that the building should be in keeping with the natural surroundings."[35] Yet the proposal they approved had a strong architectural presence, rather than being a picturesque melding

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[32] The great flight cage referenced here was located some distance from the north corner of the present Bird House, as shown on a plot plan done for the 1927 drawings. Another flight cage was built near it around the same time: "New flight cage, 60' long by 30' wide, which will hold about 100 birds, is being constructed at the Zoo just below the main flight cage. (/) In this cage will be placed the gulls, terns, ibises, spoonbills and other smaller birds so that they will be left to the bigger and more bloodthirsty birds, such as the pelicans. (/) The pelicans in the past have displayed a strong appetite for the young of the smaller birds, … (/) There will be a 20 foot swimming pool in the center of the new cage. The cage itself is about 25 feet high, giving the birds plenty of opportunity to exercise their wings. In the new cage will go some of the rare birds brought back by the Smithsonian-Chrysler expedition. (/) Just above the bird cages a road is being made for the new bird house, bids on which will be opened in a few days and construction of which is expected to start almost at once. This will have the effect of opening up to the public a little-explored section of the park." "New Flight Cage for Hundred Zoo Birds Being Built to Save Young of Rare Species," [clipping, n.d.], National Zoological Park, Bird House, Project Files, CFA, RG 66, NAB.

[33] *Annual Report of the Board of Regents of the Smithsonian Institution… 1921* (Washington, DC: GPO, 1922), 20, 95; *Annual Report of the Board of Regents of the Smithsonian Institution… 1922* (Washington, DC: GPO, 1923), 22, 102; *Annual Report of the Board of Regents of the Smithsonian Institution… 1923* (Washington, DC: GPO, 1924), 102-03; *Annual Report of the Board of Regents of the Smithsonian Institution… 1924* (Washington, DC: GPO, 1925), 102. Quotation, 1922, 22.

[34] Minutes 7 January 1926, 7-8, CFA.

[35] Minutes 27 May 1926, 3, CFA. Regarding the cornice and gable detail, the quotation is from Wetmore's letter (dated 24 May 1926) to the Commission that accompanied the revised drawings; an excerpt of the letter was recorded in the minutes. Regarding the architectural style, quotation from the minutes, 3. The solicitation for funding occurred simultaneously with the presentation and approval of the drawings, see for example, Acting Director to Mr. Everard Smith, Clerk, Committee on Appropriations, United States Senate, 2 April 1926, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA; RU 74 NZP, 1887-1965, box 127, SIA. The $102,000 was based on a brick building 130' square. The Commission's answer to Harris enabled him to proceed with the building as Mann imagined it to be, but the idea that the architecture of the Zoo should blend with its natural environs would recur throughout the master planning years (1960s, 1970s).

of building and landscape, and a historicizing aesthetic; thus it is unclear what the Commission meant with its directive for a harmonious relationship with the site. Perhaps they hoped once the building was erected, the site would be attended to or wished that this building would establish a precedent for others to follow and so ensure a cohesive overall appearance at the Zoo.

Harris appeared before the Commission of Fine Arts on two other occasions to present materials and drawings for the Bird House. In December 1926 he brought samples of face brick, and in September the following year, the decorative program was reviewed. This last encounter took the Commissioners to John Joseph Earley's studio for a hands-on study of the colored concrete that Earley created and that Harris recommended using in place of the planned mosaics. Earley also crafted capitals for the columns, one of which won praise as being "well made" and aesthetically successful since the Commission decided that Earley's "colored concrete would give a pleasing effect to the building."[36]

The extant plans for the Bird House date to spring 1927, although Harris was instructed by the Smithsonian to proceed with plans and specifications around the time of the May 1926 meeting of the Commission of Fine Arts.[37] Surviving plans and photographs suggest the Spanish style of architecture was retained, most likely referencing the clay tile coping and round field tiles on the roof and not the overall aesthetic, despite the Commission's recommendation for a more picturesque interaction with the landscape. Zoo Director Dr. William M. Mann favored a more dramatic approach and his preference won the day. The site was re-graded and the imposing, Romanesque building with Byzantine-inspired decoration anchored its end of the Zoo grounds.[38]

The Bird House was a large, one-story building with a square footprint.[39] At its center was a great room, the height of which soared above the roof-level of the perimeter exhibit areas.[40] Light filtered into the central block through clerestory windows and from the large skylight in the ceiling. The skylight was glazed with wire glass and was inset at the apex of the hipped roof. The roof over the rest of the building was flat, but it also was punctuated by skylights as well as vents, and drains. The red tile coping and round field tiles covering the expanse of the roof lent the building a Mediterranean or Spanish architectural flavor. The stepped arch in the gabled frontispiece is

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[36] Minutes 2 December 1926, 5, CFA; Minutes 15 September 1927, 6-7, CFA, quotation, 6.

[37] Minutes 24 May 1926, 3, CFA.

[38] Microfilm copies of photographs documenting the completion of the Bird House are on file with CFA, RG 66, NACP (66-G-23D2, nos. 1-15).

[39] Historic photographs, taken to document the building's completion for the Commission of Fine Arts (RG 66), indicate that the outer vestibules each had a band of three semicircular-headed windows in the front façade and that exhibit areas abutting the building extended out laterally (northeast and southwest) from the vestibules. The semicircular-headed windows were further distinguished by brick quoins. The cage areas along the building, to the side of the vestibules, were accessed by wood doors.

The building has sometimes been described as having two-stories because of the upper, mezzanine level of the great room (now known as the indoor flight room).

[40] This space has been called the "great flight cage in the center room" in the *Annual Reports*, as the "great room" on the original drawings from the 1920s, nomenclature that was repeated in the 1930s drawings, as the "free flight area" in the 1960s drawings, and presently is known as the "indoor flight room." Today birds in the indoor flight room include the great Argus, crested partridge, Sunbittern, Nicobar pigeon, Sulawesi ground dove, western crowned-pigeon, Guira cuckoo, plum-headed parakeet, blue-crowned hanging-parrot, Eclectus parrot, blue-crowned Motmot, blue-gray Tanager, Bali myna, magnificent bird-of-paradise, and violet Turaco. See www.nationalzoo.si.edu accessed 11 May 2010.

reminiscent of a Moorish arch form, with its pendants or droplets, that carried over into southern Spain; however, it appears to have been more closely modeled after the stepped arches seen on the Renaissance-period facades of the Pisa Cathedral and Santa Croce as well as on the nineteenth-century façade of the Duomo in Florence. The use of brick facing, of semicircular-headed windows, doors, and arches, of bands of semicircular-headed windows in a clerestory, of cushion capitals, and of a large opening was in keeping with Romanesque building forms. The polychrome decorative program, including the mosaic inspired, concrete (with glass inset) designs by Earley and the foliate and animal design by the painter Stephen Haweis around the front door, had a Byzantine-Revival flourish.

The gabled frontispiece, with a stepped arcade running beneath a corbelled cornice corresponded to the building mass where the brick corbelling was repeated and the arcaded form was created with Earley's cast concrete. A grouping of three windows with semicircular heads recalled the tripartite window form of classical architecture (and ecclesiastical symbolism prevalent in Romanesque period churches); beneath it was an arched doorway with paneled double doors hung beneath a semi-circular, paneled overdoor. The windows and doorway were set within a large round arch that was ornamented with stylized, arabesque-like scrolling foliage running the length of the archivolt. Stepped back from the entrance vestibule were one-story outer vestibules with lean-to roofs sloping away from the main part of the building. In plan, these outer vestibules flanked the entry and served as office space and as a coat room. The floors were made of wood. Inside the building, the walls were made of plaster and the floors were made of terrazzo divided into blocks by brass strips. Exhibit space, or rooms, surrounded the great room. Throughout the Bird House, the windows had both fixed lights and operable sash. Exterior service stairs were made of concrete (south) and metal (east), and had utilitarian pipe railings, while drawings indicate that the interior steps leading to the boiler room in the basement had metal safety treads. In contrast, the front steps were made of granite.[41]

Of the completed building, Mann proclaimed that it was "unique of its kind in providing four rooms under one roof, with 145 indoor cages. The great flight cage in the center room is 58 feet long by 22 feet wide and 30 feet high, with rock work and running water at one end, a large pool in the middle, and a fine tree at the opposite end, […] Outdoor cages will be built […] which will make the bird house the center of the ornithological section of the park." Mann planned to keep outdoor birds in runs placed around the structure. These were erected in 1928-29, around the same time as the paving in back of the building was finished. Mann, nonetheless, continued to lobby for the "completion of the Bird House" meaning that he wanted to build the south room shown in the original design that was struck from the construction campaign as projected costs ballooned.[42]

Additional cages were placed around the Bird House in 1932, including runs to the east and outdoor cages to the rear. Those in back of the building were located in consideration of the original design, that is, in relation to the southern room Mann anticipated would be built. He expected that this last phase would be completed as soon as funds were made available for it. During these years, the perimeter of the Bird House offered Mann an opportunity to experiment with the materials used for the enclosures. In the runs to the east he tested an aluminum alloy in the crane runs and a copper

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[41] Descriptive information is drawn from A.L. Harris, "Bird House (/) National Zoological Park," drawings revised April 1927, copies on file, National Zoological Park. The boiler room stairs were constructed in a quarter-turn with a landing.

[42] *Annual Report of the Board of Regents of the Smithsonian Institution… 1928*, 109; *Annual Report of the Board of Regents of the Smithsonian Institution… 1929* (Washington, DC: GPO, 1930), 91-92; quotation, 92. The south room is shown crossed out on the original construction drawings, clearly indicating the project scope was reduced to meet budgetary projections.

weld in those erected for the pheasants. This experiment is one example of how quickly views on the appropriateness of animal habitats changed, and how the Zoo tried to respond to them.[43]

While the south room was omitted from the final plans, the drawings from 1927 provided a blueprint for the addition made possible through the Public Works Administration in the 1935. In fact work at the National Zoo during the 1930s involved a host of federal programs under the auspices of President Franklin Delano Roosevelt's New Deal initiative to bring the country out of the Great Depression. Laborers for the Zoo projects were funded through the District of Columbia's Emergency Works Administration and through the Works Projects Administration.[44] Money for construction came by way of the Public Works Administration, whereas the Office of the Supervising Architect at the U.S. Treasury oversaw the contractual work and approved material samples. The Zoo's director, Dr. William M. Mann, proved adept at managing the system. He garnered appropriations for the Zoo and was able to use Chicago architect Edwin H. Clark as a consultant. Clark came to Washington, D.C., several times, and then settled in during the summer of 1935 to prepare plans and specifications. His extended stay in the city was in compliance with Treasury Department regulations for at least temporary residency for architects assigned to federal building projects.[45]

Because the expansion of the Bird House was a fulfillment of the original concept for the building, and Clark was essentially finished with the designs in the summer months, Mann was able to describe specific features of the interior by September 1935. Mann touted the glass-fronted cages and direct lighting from above. The skylights were designed so they could be opened to provide fresh air to the

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[43] *Annual Report of the Board of Regents of the Smithsonian Institution... 1932* (Washington, DC: GPO, 1934), 59-60.

[44]The CWA and Emergency Relief operations ceased and the EWA picked up the programs' mission in 1934.

[45]*Annual Report of the Board of Regents of the Smithsonian Institution... 1935*, 4, 54-55; *Annual Report of the Board of Regents of the Smithsonian Institution... 1937*, 70, plates 4-5; *Annual Report of the Board of Regents of the Smithsonian Institution... 1938* (Washington, DC: GPO, 1939), 67; var. dates, 1931-35 diary, Edwin H. Clark Collection, Art Institute of Chicago (AIC); National Zoological Park, Bird House, General Correspondence and Related Records, 1910-39, Public Buildings Service, RG 121, NACP. See also, Antoinette J. Lee, *Architects to the Nation: The Rise and Decline of the Supervising Architect's Office* (NY: Oxford University Press, 2000), 256-69. In the 1930s, the federal public buildings program administered by the Supervising Architect's Office in the Treasury Department was folded into the worker-relief effort of the New Deal. The commitment to employing tradesmen for construction jobs reignited a rivalry between the Office of the Supervising Architect and the American Institute of Architects because the latter interpreted the Treasury's pursuit of tradesmen, such as the Charles H. Tompkins Company, as an obstacle to architects finding work. Moreover in June 1934, the Secretary of the Treasury Henry Morgenthau, Jr., initiated a campaign to place all Treasury construction under the Supervising Architect's Office and advocated the use of standardized plans to curb costs. Larger, and more expensive, buildings could be designed by consultants, but only if the consultants relocated while work was underway, as Clark did for the Zoo.

Details of Clark's contract were negotiated in April and May 1935. Clark to Mann, 12 April 1935, RU 74 NZP 1887-1965, box 225, SIA; Edwin H. Clark to Dr. William M. Mann, 24 May 1935, RU 74 NZP 1887-1965, box 225, SIA; Clark to Mann, telegram 27 May 1935, RU 74 NZP 1887-1965, box 225, SIA; Dr. William M. Mann to Charles R. Knight, New York, 31 May 1935, RU 74 NZP 1887-1965, box 225, SIA. Clark returned to Washington at the end of May, signing the contract at the Treasury on 28 May 1935. He stayed to "organize the Zoo job" through the first of June. 1931-35 diary, Edwin H. Clark Collection, AIC.

Mann's success in getting almost all of the money he requested for the 1930s expansion of the Zoo received notice. See "Zoo Construction Will Start Soon," *Evening Star* 27 January 1935, clipping, National Zoological Park Vertical File, Historical Society of Washington, DC (HSW).

exhibit areas. The building also had two panorama cages, one for tropical birds and one for penguins.[46] The Commission of Fine Arts reviewed the drawings at its October meeting, approving them after a lengthy discussion with Mann, Clark and R.W. Bristol, the latter two as "zoological-architectural experts," concerning the monumental scale of the buildings, the Romanesque style of the Bird House and Reptile House and the Commission's preference for a more unified aesthetic among the Zoo's buildings, the Commission's request for a cohesive landscape plan, and questions regarding whether or not contemporary Zoo practice called for buildings or outdoor habitats.[47]

Construction bids for work at the National Zoo were solicited in 1935, and Charles H. Tompkins Company of Washington, DC won the Bird House job.[48] In January 1936, Mann wrote to Clark that "all contracts have been let and they are ready to shoot now with the bird house and the pachyderm house..."[49] The footings were in place and the floor poured by springtime, despite some early difficulties; the arrival of bricks ushered in the next phase of work and Mann hopefully penned a note to Clark saying that work on the halls would begin. By November the addition was essentially complete. On the exterior, the cornice was seamlessly extended, but the watertable- or ledge-like feature that wrapped around the north and west corners from northwest (front) elevation stopped at the joint line between the original building and the addition.[50] Inside, there were a number of "glass-fronted cages" including an exhibit likened to a "well-lighted cold storage room" for penguins.[51] Convenience for visitors was also considered, and public restrooms were located in the basement, accessible by outdoor steps on the east end of the northeast elevation.

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[46]Dr. William M. Mann to L.C. Everard, Editor, American Association of Museums, 27 September 1935, RU 74 NZP 1887-1965, box 225, SIA. The penguin exhibit was much admired, and the habitat included a pool and painted icebergs. See "National Zoo Goes Modern," *Evening Post* 30 May 1941, and "Penguins Go On Display in Remodeled Cage," *Evening Star* 7 March 1937, clippings, National Zoological Park Vertical File, HSW.

[47] Minutes 4 October 1935, 1-4, exhibit a, CFA. Mann defended his architectural program, which would make seven buildings on twenty acres (out of the Zoo's 176 acres), and cited the London Zoo's thirty-two buildings as a counter to the Commission's suggestion that the habitats be outdoors, unless the animals needed the protection from the weather. At least one of the Commissioners was put off by the poor quality of the Photostat copies sent by Louis Simon's office for him to review. (Simon was the Supervising Architect at the time). Of the Bird House drawings, the Commissioner commented that "The Bird House seems to be a continuation of what has already been built. But the elevation is so messed up with what is apparently a colored pencil that it is difficult to see what it looks like. Probably it would be satisfactory enough…" Egerton Swartwout to H.P. Cammerer, 21 September 1935, National Zoological Park, Bird House, Project Files, CFA, RG 66, NAB. See figures 7-8.

[48]"Bids Are Opened for Zoo Buildings," *Washington Post* 4 December 1935, 10; 2 December 1935, 1931-35 diary, Edwin H. Collection, AIC.

[49]Mann to Clark, 3 January 1936, RU 74 National Zoological Park 1887-1965, box 225, SIA; 5-9 January 1936, 1936-40 diary, Edwin H. Clark Collection, AIC.

[50] On the southwest elevation, for example, it terminates at the bridge to the Great Flight Cage today. The height drops down at the bridge and ends just east of it. To the northeast, it ends just west of the louvered openings, and east of exhibit no. 8. This watertable or ledge element of the composition did not direct water away from the building, as watertables typically were designed to do, and sometime later concrete was added to the flat surface of the 6" deep top to try and guide water from the wall. It does not appear to have been a successful long-term solution.

[51] William Mann to Edwin Clark, 4 May 1936, RU 74, box 225, SIA, copy also on file, 06-225 Office of Architectural History and Historic Preservation, box 48, SIA; *Annual Report of the Board of Regents of the Smithsonian Institution… 1937*, 70, plate 5. Quotation, *Annual Report*, 70.

The 1930s expansion of the Bird House was highlighted in *Parks & Recreation*, which noted the building's public opening on Thanksgiving Day 1936 and the continued work on the decorative program of the interior through the fall of 1937. The Bird House was described as having

> [an] addition [that] extends the full width across the back of the building, and is 43 ft. by 133 ft. The exterior is of brick of the same style and ornamentation as the original structure. The interior arrangement is a distinct departure from the treatment of the old portion of the building. The cage fronts are of glass, and service of the cages is from the rear. Entirely across one end of the wing is a cold storage room with a double glass front. This room was designed for penguins, and they are made to feel at home by a constant temperature now maintained at about 53 degrees.
>
> The opposite end of the wing is occupied by another cage the full width of the room. This cage now accommodates a group of crowned pigeons, birds of paradise, rails and doves.
>
> In all, there are twenty-seven cages in this wing. Six of the interior cages have painted backgrounds: one representing the tropics, one the polar region, and one each indicating Asia, Africa, South America and Australia. There is a carved linoleum panel over each door: one of a tropical desert and one of a tropical forest. Over each outside door is a panel, one showing the restoration of the moa and the other of the dodo. These were all done by Domenico Mortellito.
>
> The ceiling of the bird house is covered with acoustical plaster wihich [sic] very much reduced distortion of the sounds of the birds. The decorative scheme of the public space is a buff.[52]

6. Alterations and additions: Although the WPA project at the National Zoo drew to a close in August 1940, Dr. William M. Mann's plans for the continued development of the Zoo looked for a renewal of Public Works funding before and after the war.[53] Undeniably, the Bird House benefitted from its completion just prior to the United States entry into the Second World War; wartime restrictions affected both man hours and supplies. In many instances, maintenance was deferred. Yet, the staff kept on by the Zoo during the war years worked overtime. Anticipation of the post-war, 40-hour work week elicited complaint from the Director about the backlog of projects and how less likely they could be accomplished unless staffing needs were addressed.[54] In 1946, the *Annual Report* returned to a familiar by-line: the Zoo's need for new, modern buildings for the animals to replace the animals' "antiquated" and "dilapidated" homes. These deplored facilities had been erected early

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[52] *Parks & Recreation* 21, no. 9 (May 1938): 471-73, quotation 472. The difference between the south room or wing built in the 1930s and the original portion of the building was primarily in how the birds were exhibited, with the latest or most current ideas placing the birds behind glass-fronted cages, the continued use of skylights (although operable), and the placement of service or service access to the enclosures to the rear of the display area. Likely, too, the innovative penguin display contributed to this sense of a dramatic departure from how things were done before.

[53] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1941* (Washington, DC: GPO, 1942), 78-79; *Annual Report of the Board of Regents of the Smithsonian Institution ... 1946* (Washington, DC: GPO, 1947), 85-86.

[54] See for example *Annual Report of the Board of Regents of the Smithsonian Institution ... 1942* (Washington, DC: GPO, 1943), 70; *Annual Report of the Board of Regents of the Smithsonian Institution ... 1943* (Washington, DC: GPO, 1944), 65. Regarding man hours, *Annual Report of the Board of Regents of the Smithsonian Institution ... 1945* (Washington, DC: GPO, 1946), 74.

in the Zoo's history and often were made in an ad-hoc manner to respond to a specific need, unlike the purpose-built Bird House (but rather like the temporary bird houses of 1900 and 1901).[55] This call for assistance was tempered with an acknowledgement that funding was dependent upon economic strength, yet was no less demanding for the sake of the animals than the campaign in the 1920s had been. In 1947, the six penguins – in their state-of-the-art cold weather habitat - were photographed for the *Annual Report*, but otherwise no specific reference to the Bird House was made until the 1950s.[56]

By 1950, the Bird House had been operational long enough for keepers to determine what was working effectively and what could be improved. Small changes were made. The first reported alteration involved the replacement of eight, double-deck cages with three large cages. The stacked arrangement "had never been satisfactory."[57] Similarly, deteriorated wire in the upper part of thirty-four cages was replaced with glass while outside the silver gull cage was fixed and got a new covering.[58] Cage fronts in the parrot room also fared poorly, and so were replaced with glass.[59] In 1952 the outside exhibit spaces were spruced up; "extensive repairs" were made to all the cages attached the Bird House. These cages were also painted. Wood shelters in the outdoor flight cage were replaced with structures made of brick and concrete. The ironwork on the eagle cage (now demolished) was repaired, replaced where necessary, and painted. Inside the building, nine cages in the finch room were redesigned. Plate glass covered the top portion and "electric-weld wire fabric" covered the bottom. Facility systems were also noted, and the Zoo hoped to extend the steam conduit from the Mammal House to the Bird House. With the conduit, the Zoo hoped to mitigate any repairs to the 1920s-era boilers and to reduce heating expenses.[60] The next year, Zoo officials started to lobby for a new ventilating system for the Bird House, and by 1955, specific reference to the ventilation and refrigeration plants for the penguins was made.[61] Also in this year, the age of the Bird House was mentioned in the context of needing another general mechanic to help maintain the buildings and

> keep pace with [the] natural deterioration in the structures. The newest of the exhibition buildings are eighteen years old, the reptile house is twenty-

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[55] *Annual Report of the Board of Regents of the Smithsonian Institution … 1946* (Washington, DC: GPO, 1947), 85-86; this theme was repeated the next year. See *Annual Report of the Board of Regents of the Smithsonian Institution … 1947* (Washington, DC: GPO, 1948), 91.

[56] *Annual Report of the Board of Regents of the Smithsonian Institution … 1947*, n.p.

[57] *Annual Report of the Board of Regents of the Smithsonian Institution … 1950* (Washington, DC: GPO, 1951), 92.

[58] *Annual Report of the Board of Regents of the Smithsonian Institution … 1953* (Washington, DC: GPO, 1954), 115; *Annual Report of the Board of Regents of the Smithsonian Institution … 1951* (Washington, DC: GPO, 1952), 104. The gull cage was worked on in 1951.

[59] *Annual Report of the Board of Regents of the Smithsonian Institution … 1954* (Washington, DC: GPO, 1955), 107.

[60] *Annual Report of the Board of Regents of the Smithsonian Institution … 1952* (Washington, DC: GPO, 1953), 106, 109. The finch cage would be redone in 1968; see drawings on file, NZP (no number assigned). The work on the conduit was done in 1954. *Annual Report of the Board of Regents of the Smithsonian Institution … 1954* (Washington, DC: GPO, 1955), 108.

[61] *Annual Report of the Board of Regents of the Smithsonian Institution … 1953* (Washington, DC: GPO, 1954), 117; *Annual Report of the Board of Regents of the Smithsonian Institution … 1954*, 112; *Annual Report of the Board of Regents of the Smithsonian Institution … 1955* (Washington, DC: GPO, 1956), 126; regarding the penguins, *Annual Report of the Board of Regents of the Smithsonian Institution … 1955* (Washington, DC: GPO, 1956), 122.

> four years old, and the bird house is twenty-seven years old. The minimum of maintenance has fully occupied the mechanical force, mainly on the larger structures that there has been almost no opportunity to take care of the lesser structures such as paddocks and outside cages, with the result that an increasing number of these are unusable.[62]

In 1956, the aging of the WPA-era buildings was recognized. The buildings' well-worn or deteriorated state was the result of the passage of time, as well as of steady use and limited manpower for preventive maintenance. A paucity of funding also curtailed the work. Yet the Zoo construction and maintenance department fashioned new metal skylights; while the Bird House was not mentioned as a recipient of the department's skylights, it is a likely candidate.[63] Also at this time the novelty of the penguin exhibit continued to attract attention but the facilities needed improvement, especially if the Zoo was going to have penguins from the on-going Antarctic expedition led by the U.S. Navy and Rear Admiral Robert Byrd.[64] The prospect of more penguins prompted a discussion about the air filters and providing chilled water and lower temperatures. The cooling system was by then twenty years old, and so a back-up unit was installed.[65] As the Zoo stepped up its lobby for increased appropriations, the *Annual Report* painted an increasingly dire portrait. The buildings were old, expensive, and ill-suited to the animals they housed. Enclosures were abandoned. Grounds were neglected. Still, all that was sought for the Bird House was a new ventilating system.[66]

In the following years, in order to better make their case or to better elucidate what they needed, Zoo officials used the Smithsonian's *Annual Reports* to repeat their cautionary strictures about the age of the exhibition buildings. Through the *Annual Reports* they revealed dramatic measures, such as abandoning animal enclosures, which they had to take under their straightened circumstances. In the 1957 report they also quantified the extensive grounds, buildings, and enclosures under the Zoo's care. Three miles of roads for automobiles, and seven for pedestrians, crisscrossed the 176-acre park. Twenty-two acres were maintained as lawn, but the majority remained as natural woodland. There were two miles of boundary fencing, plus another eight for paddocks. There were 201 buildings in all, including the large exhibition buildings (7), office, police headquarters/public restrooms/gardeners' storage, cafeteria, service structures (19), and animal shelters (172). For the animals, there were sixteen outdoor pools; cages, on the other hand, numbered over seven hundred.[67] In 1958, the goals of the National Zoo were reiterated in the *Annual Report* in an effort to remind its audience of the disparity between its mission and what it could achieve with its limited means. In May of that year, a tragic accident brought the public's attention to the matter, and shortly thereafter, four buildings including the Bird House were closed for safety reasons.[68] This overshadowed the

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[62] *Annual Report of the Board of Regents of the Smithsonian Institution... 1955*, 127.

[63] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1956* (Washington, DC: GPO, 1957), 135.

[64] This was not the first foray by the United States into the Antarctic, but was the beginning of decades-long (1955-98) sustained presence at the South Pole by the U.S. Navy.

[65] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1956*, 136.

[66] Ibid, 139-40.

[67] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1957* (Washington, DC: GPO, 1958), 152-53.

[68] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1958* (Washington, DC: GPO, 1959), 140, 177-78; "Four Zoo Houses Closed to Visitors," *Evening Star* 29 December 1958, clipping, National Zoological Park Vertical File, HSW. The intention or definition of the Zoo, as summarized in the *Annual Report*, was "a complete animal exhibit is one

launch of an experimental cage behind the Bird House that was made for species of birds that had not adapted well to being on display. The cage allowed the birds a secluded habitat and afforded the keepers an opportunity to study them, and care for them, in less stressful circumstances.[69]

While the Bird House, or a part of it, was closed to the public, damage done during Hurricane Hazel (1954) was discovered and remedied. Conditions were such that one wing stayed closed for a year, longer than was anticipated. It was reported that the keepers used this to advantage, and "the cages in the 'new' wing of the Bird House have been completely redecorated, furnishing a more naturalistic setting with extensive use of plantings and trees. Not only are the birds exhibited in a much more interesting fashion but they seem happier and more contented." Throughout the building, the ceiling was patched and extensive repairs to the plaster were made. The interior was repainted in "light, sunny colors." Two of the exterior pens were re-fenced. Drawings for a new roof were done, and those documents specified composition roofing for the flat roof areas. The *Annual Report* did not reference repairs to the roof until 1961, however.[70]

In 1961, Dr. William M. Mann died. Mann had served as the director of the National Zoo from 1925 to 1956, building both the collection of animals that made up the Zoo and building the zoological garden for those species and their visiting public.[71] He was the architect of the WPA-era Zoo, and with his death, his successors looked to modernize the facilities he bequeathed them. In August 1961 the assessment of the Zoo found the exhibits to be in fair condition, but obsolete by contemporary standards governing animal health, public safety, and the display of animals. The WPA-era buildings were outdated, but could be rehabilitated and adapted for use with upgraded ventilation and heating systems, as well as improvements to the electrical and sewer systems. The "small and deteriorating" cages were another matter and their replacement would necessitate a rethinking of how the Zoo presented its collections to the public.[72]

Thus the Zoo began to call for a master plan to guide future development and coordinate construction efforts, including work on the water, electrical, sewage, and heating systems. The

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in which the animals are kept in secure surroundings that satisfy the requirements of the animal, is esthetically pleasing to the public, and contributes to an increased knowledge of the animals and their behavior." (p. 140) The *Evening Star* clipping stated that the front entrance and two areas (not specified) of the Bird House were closed in this interval; these areas were cordoned off because of falling plaster. It also credits Hurricane Hazel (1954) for inflicting damage to the roof, causing it to rot. The condition of the roof was also noted in the Zoo's safety survey of 1958.

[69] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1958*, 177.

[70] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1959* (Washington, DC: GPO, 1960), 187-88. Quotation, 187-88. Regarding the roof, drawings on file, NZP (C07-38-60). *Annual Report of the Board of Regents of the Smithsonian Institution ... 1961* (Washington, DC: GPO, 1962), 175.

[71] *Annual Report of the Board of Regents of the Smithsonian Institution ... 1961*, 163-64; his obituary ran in the newspapers in October 1960, see National Zoological Park Vertical File, HSW.

[72] Report 16 August 1961, copy on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. This report was part of an effort to pull responsibility for the Zoo buildings back to the Smithsonian and so alleviate some of the burden on the Municipal Architect (whose office was preoccupied with school buildings and facilities for the District anyway) and the Commissioners of the District. The reorganization of how things got built in the Zoo dovetailed with the master plan and capital improvement program because of which agency paid for what (all federal funds by this time). See also, "Reconstruction of Zoo Over Ten Year Period Urged by Smithsonian," *Washington Post City Life* 11 August 1961, clipping, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 50, SIA..

Friends of the National Zoo (FONZ) sponsored one study, by Meade Palmer and Morris Trotter,[73] that advocated for a pedestrian greenway, while the firm Daniel, Mann, Johnson and Mendenhall (DMJM) embarked on an architectural and engineering investigation for the renewal of the Zoo. The DMJM plan was accepted in principal, and their work shifted to plans and specifications for the first phase of the renovation. Germaine to the Bird House at this juncture was the test panel installed between two hawk cages. This panel consisted of vertically-run, high tensile strength wires. Without horizontal ties, the panel appeared practically invisible and this seeming lack of a barrier could safely bring the animals and viewers closer together. Studies were underway to determine the optimal spacing of the wires for different species.[74]

The Bird House was slated to be renovated during the first phase of work. In 1962 it had been described as one of the "antiquated" facilities at the National Zoo and visitor dissatisfaction with the exhibits – how the birds were displayed – was expressed. One complaint recounted how the interior height of many of the glass-front cages extended above the glass portion of the wall, meaning the tree tops and the birds in them were out of view. A railing at the floor prevented visitors from squishing up against the glass to see up to the top of such spaces. Exhibit labels also were inaccurate, identifying species incorrectly or suggesting a cage was occupied when it was not.[75] Concerns such as these for the relationship between the visitor and the displays were endemic to the master plan process, shaping the critique of the design during the review by the Smithsonian and the Commission of Fine Arts.[76] Thus the Bird House was one exhibit hall specifically cited by Palmer and Trotter; their concept for the National Zoo was otherwise broad: that the animals be confined in a manner that assures their safety and well-being as well as the safety of visitors; that they be displayed in educational and attractive exhibits; that visitor convenience and movement be considered, while ensuring the flow-pattern follow natural topography; and that the plan provide for coherent surface organization and eventual expansion. Within these strictures, Palmer and Trotter advised that the Bird House could become a specialized zoo within a zoo centering on an enlarged and enlivened building and walk-through cages.[77]

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[73] Their study was announced in the newspaper in 1959, "Two Architects Named to Prepare Master Site Plan for National Zoo," *Evening Star* 27 July 1959, clipping, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[74] *Annual Report of the Board of Regents of the Smithsonian Institution … 1960* (Washington, DC: GPO, 1961), 171; *Annual Report of the Board of Regents of the Smithsonian Institution … 1961*, 177; *Annual Report of the Board of Regents of the Smithsonian Institution … 1962* (Washington, DC: GPO, 1963), 178; "Fine Arts Backs Zoo Plan," *Washington Post*, 24 January 1963, clipping, National Zoological Park Vertical File, HSW. In the mid 1960s the Municipal Architect's office was discharged from its responsibilities over the Zoo's architecture. DMJM therefore proceeded without the Municipal Architect's oversight, although the firm's design still had to meet with approval from the Smithsonian and the CFA.

[75] [Constituent] to Senator Owen Long, 9 March 1962, copy of letter on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 51, SIA.

[76] See, for example, William Walton, Chairman, to S. Dillon Ripley, Secretary, 6 April 1964, copy on file CFA and 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. Approval by the Commission of Fine Arts proved more elusive than that by the Smithsonian. The Commission rejected several schemes in the early 1960s, and Director Theodore Reed's strategy of asking building by building came unraveled when the CFA requested a comprehensive approach. Richard Webel's (1964) plan was dismissed, for instance. See "New Zoo Plan Is Likened to 'County Fair' Setup," *Washington Post* 20 April 1964, clipping, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[77] Meade Palmer and Morris Trotter, [Master Plan 1960-61], copy on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. The Bird House is addressed on pg. 6.

During these introspective years, when the National Zoo sought to define itself and plan for its growth, maintenance of the existing facilities continued. Flight cages unaffected by the master planning process, such as the eagle cage, were scheduled for repair and paint by the District of Columbia's Buildings and Grounds department in 1962. This detail fell to the city because of the 1912 act transferring architectural authority for Zoo buildings to the Municipal Architect, a responsibility transferred to the city's Commissioners in 1952.[78] This arrangement was superseded in the mid-1960s, a change precipitated by the Zoo's engagement in a master plan and the launch of its capital improvement program.[79] Leaving the particulars of the bureaucracy to the Zoo, DMJM summarized their plan for the modernization of the Bird House:

> The interior of the Bird House will be remodeled to provide more suitable exhibits for birds which must be shown indoors, the great flight cage will be replaced with a geodesic dome adjacent to the Bird House. The area will be re-landscaped, and new outdoor cages and pens provided. Large flightless birds will be exhibited behind dry moats, with fences.
>
> General construction materials will be tubular metal for the geodesic, and concrete for the visitors' walks.[80]

Edrow Engineering won the overall contract for the renovation work at the Bird House as well as for the construction of the "new walk-through flight cage." Birds were evacuated to other locations, coming to roost in temporary shelters like the one constructed for them in the old antelope house. Work on the Bird House began on 29 April 1963 and it was hoped work would be completed in a year's time.[81] The deadline was extended to the end of 1964, and the building was finished that December. The birds moved back, although the collection had to be restocked so that when the public was invited in they would see many new species in addition to old favorites "kept behind the scenes" throughout the remodeling.[82]

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[78] $42,000 was allocated for the repair of the flight cages in fiscal year 1962. T.H. Reed to Keddy, memorandum 17 March 1960, and Leonard Carmichael to the Honorable Frank T. Bow, 29 June 1962, copies on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. Also, *Annual Report of the Board of Regents of the Smithsonian Institution … 1963* (Washington, DC: GPO, 1964), 142.

[79] On the change, *Smithsonian Year 1966* (Washington, DC: Smithsonian Institution, 1966), 160. The Commission of Fine Arts still had to approve designs, and their endorsement came in 1963. See "Fine Arts Backs Zoo Plan," Washington *Post* 24 January 1963, clipping, National Zoological Park Vertical File, HSW; as well as Minutes 23 January 1963, 5-6, CFA. The *Post* summarized the plan as including a new flight cage, remodeling the building, relocating the eagle cage, constructing a new footbridge "that will afford zoo-goers the novel experience of being able to gaze down at winged [ones]…" The great flight cage was highlighted in "Zoo Birds Getting a New Home," *Washington Post* 28 April 1964, B1, and in "Zoo's Free Flight Cage Progresses," *City Life* 3 May 1964, B1, clippings, National Zoological Park Vertical File, HSW.

[80] No. 15, DMJM Master Plan, 11 September 1961, copy on file , 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[81] *Annual Report of the Board of Regents of the Smithsonian Institution … 1963*, 142, 145. Bids were sought in November 1962; the notice highlighted the free-flight, people-sized flight cage that was part of the project. "Bids Asked for Two Cages," *Washington Post* 1 November 1962, clipping, National Zoological Park Vertical File, HSW. On the relocation of the birds, Jerry O' Leary, "DC Zoo in a Flutter as 1150 Birds Move," *Evening Star* 25 November 1962, clipping, National Zoological Park Vertical File, HSW.

[82] *Annual Report of the Board of Regents of the Smithsonian Institution… 1964* (Washington, DC: GPO, 1965), 155; *Smithsonian*

In February 1965 the Smithsonian proudly introduced its renovated Bird House, the first of the exhibition buildings to be revamped under the umbrella of the capital improvement or modernization plan for the National Zoo. Even the exterior was different. The old decorative entrance was removed and reinstalled in the indoor flight room. The hipped roof was replaced with flat skylights. Inside, in keeping with Zoo practice, exhibit spaces were designed for the eyelevel of a child and placed only on one side of the walkway. Visual barriers were mitigated or eliminated altogether. In the Bird House these goals manifested themselves in the curving floor plan that wound around the indoor flight room (as it still does today); a pathway through the indoor flight room so visitors could look up to birds in flight[83] or, if traversing the ramps, see the birds at eyelevel; cages with glass or tension wire fronts; and outdoor exhibit areas. Some exhibits had concave glass, a feature it was hoped would create a sensation of openness. Of the twenty-seven indoor exhibits, moveable wall panels and separate temperature and humidity controls gave the Zoo greater flexibility in accommodating different species of birds. There were also two exhibit areas with indoor and outdoor spaces. The community cage, an octagonal structure made of stainless steel mesh, mimicked one erected at the New Delhi Zoo. The community cage was an outdoor exhibit space measuring 27' in diameter and 17' in height. It was equipped with heated perches and it connected to the Bird House proper at the west corner. The other indoor-outdoor space is exhibit no. 14, for the flamingoes, that had sliding glass doors to be opened in warm weather; the exterior portion of the exhibit had a 50' pool. Birds in the indoor flight room at the center of the building were tropical and "rods in the clear plastic ceiling [had] nozzles from which 'rain' falls on areas planted with exotic trees and shrubs." In the basement, there was a kitchen, feed-storage room, incubator room, and seven holding cages. For the keepers there were bathrooms, a utility room, and storage. In all, the Bird House had over 16,000 square feet inside, and another 174,000 square feet outside.[84]

The visitors' experience inside the Bird House was heightened by the contrast of lighting; the visitors' gallery walks were darker than the exhibits which were further enhanced by "a profusion of tropical spruce, bamboo, palms, grasses, and ferns." Interpretative materials and labels, found to be so woefully inadequate before, were included in illuminated signs; the signs alternated with planters behind "modern" aluminum guard rails. Adding to the ambiance were "graceful wood paneling, spectator benches, and a circular fountain."[85] Inside the exhibits, for the various species of birds, similar attention to creature comforts was paid. Habitats were recreated, giving each species familiar

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Year 1965 (Washington, DC: Smithsonian Institution, 1965), 159, quotation, 159.

[83] The DMJM-era drawings show the pathway going all the way through the indoor flight room, but sometime afterward – at an unknown date – visitor access on the ground floor was limited to the southeast entrance and viewing area. The doorway on the northwest side was blocked and the path landscaped.

[84] Quotation from "Presenting the New Bird House at the National Zoological Park," Smithsonian Institution, 11 February 1965, pamphlet, copy on file, RU 365 National Zoological Park, Office of Public Affairs, 1805-1988, box 35, SIA; also, "Zoo Birds Move to Grand Hotel," *Smithsonian Torch* new series, no. 1 (February 1965): 1; "Strictly for the Birds," *Spots and Stripes* 1, no .4 (December 1964), 1; typescript description of Bird House also in RU 365 NZP, Office of Public Affairs, box 35, SIA. Drawings on file at the Zoo indicate that the flamingo pool was redone in 1982; the flamingo house was drawn up even earlier by the architectural firm, Faulkner Fryer and Vanderpool, in 1974 (sheet A-4). It is unclear from the documents when precisely the sliding glass doors were replaced with the present insulated glass, however.

[85] "Strictly for the Birds," 1; the circular fountain must have been removed for the installation of the kiwi viewing area. Plans indicate that it was made of copper. The wood bench appears to be in the same location as the current one. Daniel, Mann, Johnson and Mendenhall, "National Zoological Park – Phase 1, Project Drawings, Bird House Ground Floor Plan South Portion," sheet A-4, 1962, rev. 1963, copy on file, NZP (38-8-63).

plants and a pool.[86] The Zoo's maintenance and grounds crew labored over the preparation of the cages, "setting out 2000 plants, installing large perches, scouting wooded areas for old logs and stumps, …" to complete the birds' surroundings in time for the grand opening.[87]

The most innovative part of the remodeling of the Bird House was its Great Flight Cage.[88] Exterior flying cages had long been a part of the Zoo landscape but nothing like the soaring "exhibition tent" had been seen before. It received a citation of excellence in engineering from the American Iron and Steel Institute for its design and use of steel.[89] The frame of the cage consisted of six parabolic arches made of steel that formed a circle some 130' in diameter with a 90' mast at its heart. The arches rise to the same height, but vary in scale due to the sloping topography; the tallest is about 70'. Seventy-two steel cables stabilized the arches as they tilt out at a 30-degree angle. The cables, which are a ½" wire rope from the Bethlehem Steel Company, were anchored on the mast at about 80' and they radiated outward at 5-degree intervals. The cables end at the reinforced concrete foundation wall at the perimeter. A vinyl-coated, steel wire mesh covered the arching frame. The fabric was made of 19-gauge wire; the mesh was 1" to 2" and was manufactured by Gilbert and Bennett of Georgetown, Connecticut. Bethlehem Steel also supplied the Mayari R steel used for the cage; about 75 tons were used. The steel was corrosion resistant; all of the steelwork was welded. The arches were made by Fabricators Steel Corporation in Maryland. Each arch consists of four sections, which were temporarily bolted together on site and then welded. The complexity of the arching forms – the topography dictating there be differing overall heights to the arches that then intersected one another at same elevation as well as the design that leaned the arches outward on an angle – called for careful engineering. Consultants for the project were Rick Engineering of Washington, DC, who assisted the contractor, Edrow Engineering, in the construction of the cage. The structural engineer was Donald J. Neubauer. Wind tunnel tests conducted at the University of Maryland confirmed the tensile strength of the webbing; the mesh and wire roping withstood 100 mile per hour winds. DMJM is credited with the design of the Great Flight Cage, specifically Richard Dimon of their Virginia office, but Zoo Director Theodore Reed was its inspiration.[90]

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[86] "Strictly for the Birds," 1; typescript description, RU 365, NZP, Office of Public Affairs, box 35, SIA.

[87] *Smithsonian Year 1965*, 200-01.

[88] It was inspected in June, and readied for a mid-July opening. Again this "period of feverish activity" put pressure on the maintenance and grounds team. *Smithsonian Year 1965*, 207; on the opening, *Smithsonian Year 1966*, 160. The Great Flight Cage was also highlighted in "Zoo Birds Getting a New Home," *Washington Post* 28 April 1964, B1, and in "Zoo's Free Flight Cage Progresses," *City Life* 3 May 1964, B1, clippings, National Zoological Park Vertical File, HSW. Its opening was much anticipated, with periodic updates in September 1964, 8 October 1964, and 17 January 1965, and more specifically in "Zoo's Newest Creation Is for the Birds," *Evening Star* 23 January 1965, clippings, National Zoological Park Vertical File, HSW.

[89] Quotation, "Birds Always in View for Visitors to New Vinyl Wire Washington Flight Cage," *Gilbert and Bennett Newswire* [1965], 1.

[90] "Birds Always in View…," 1; "Giant Aviary Framed with Steel-and-Steel-Cable Ribs," and "Steel for the Birds," advertisements for Bethlehem Steel, ca. 1965; "Steel and Wire Birdhouse," *Building Construction* (May 1965) 47-48; "Unique Construction Used in Flight Cage"; [Great Flight Cage], *Steelways*, publication of Bethlehem Steel, copies on file, RU 365, NZP, Office of Public Affairs, box 35, SIA. Advertisements for Bethlehem Steel that featured the flight cage appeared in the *Engineering News-Record* and in *Building Construction* during the year it opened; DMJM promoted their work, also highlighting the flight cage. Field measurements were taken in the morning to minimalize the expansion/contraction of the steel and models were made to assist with the development of the steel plates. There is some movement in the completed structure, as much as 2" toward the sun, but the engineers determined the central mast was plumb when the sun was overhead or the weather was cloudy. "Steel and Wire Birdhouse," 48.

A 38-foot bridge supported by three reinforced concrete x-braces links the Great Flight Cage to the Bird House at the upper level of the indoor flight room. The bridge or elevated walkway is made of concrete. Visitors enter the Great Flight Cage from this walkway, passing through two sets of double doors at the parabolic tunnel-like entrance. The doors were glazed. This tunneled corridor kept the birds in and let the people come and go. Once inside the cage, or "the natural world envisioned by the designer, […] one can saunter along winding walks through a landscape of rocks and waterfalls and natural greenery and observe the birds …" The experience – without the physical barriers – of being inside the cage with the birds, in their environment, with open air and waterfalls and pools and plants, expanded on that achieved in the indoor flight room. Reed wanted Zoo-goers "to smell and hear, and almost feel, those birds, …and glass or heavy wire is a separation between you and the animals. This, as we now have it, gives people the total biology of the birds."[91] With the Great Flight Cage, he got his wish. [92] And in July 1965, when the Great Flight Cage opened, forty-three different species of birds were living there, up to eighty birds in all. Only the black ibis flew into the mesh, but it took to the air again not long afterwards.[93] It was more apparent where the people were to go. Pedestrian circulation was confined to a winding asphalt path, with a second parabolic tunnel entrance (now closed) at the west side. The pathway is edged by concrete curbing and has a metal handrail. A circular seating area is just north of the entrance.

After the DMJM renovations of the mid-1960s the Bird House received periodic updates and maintenance, such as the overhaul of the HVAC system in the 1990s, but has had no remodeling on such a sweeping scale.[94] The Bird House and its environs were included in various studies of the grounds of the National Zoo and in the master plans.[95] The longevity of the innovative skylights was

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[91] "Birds Always in View…," 1-2. Reed wrote a paper for the *International Zoo Yearbook* (vol. 6) about the remodeled Bird House and the Great Flight Cage; its publication was announced in the *Annual Report*. See *Smithsonian Year 1965*, 207.

[92] Nonetheless, improvements were made to the Great Flight Cage in 1981, including the installation of the present vestibule doors. Komatsu/Brown Architects, "Repairs to the Great Flight Cage," drawings 1981, copy on file, NZP (8019).

[93] "Birds Take to the Air in Huge New Cage at the Zoo," *Washington Post* 16 July 1965, A4, clipping, National Zoological Park Vertical File, HSW.

[94] An undated clipping, "Bird House Is Fowled Up," *Washington Daily News*, recounts how the paint used for the Bird House in the renovations was not holding up to the humid conditions inside the building, especially in the indoor flight room. The walls had to be "swabbed down" each day; nonetheless, they were chipping and peeling. These conditions were exacerbated by a roof leak. The article also says the walls were supposed to be tile but the cost of materials was too dear. It also, inaccurately, states the renovated building was initially constructed in 1913 or 1914. 06-225 Office of Architectural History and Historic Preservation, Building Files, box 50, SIA. Theodore Reed, the Director of the Zoo at the time, wrote in May 1966 that "plaster and paint are peeling very badly in the Bird House, so they have to go back and do a lot of work on that …" which suggests the clipping could date to as early as 1966. Reed to Mr. and Mrs. J. Lear Grimmer, 17 May 1966, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[95] The Commission of Fine Arts approved, in principal, the ten-year redevelopment program for the National Zoo in 1962; this was the proposal by DMJM. Specific projects were presented to the Commission in 1963, the second phase in 1964, and third later that year. DMJM oversaw the first two phases, while Alan Jacobs had the contract for the third. In 1965, master plans were submitted and rejected. Another round of planning ensued, and a new master plan by Faulkner, Fryer and Vanderpool, Architects, was presented in 1971. This guided work throughout the decade. Minutes 20 March 1962, 4, CFA; Minutes 21 March 1962, 1, CFA; Minutes 22 January 1963, 4, CFA; Minutes 23 January 1963, 5-6, CFA; Minutes 17-18 March 1964, 2-4, CFA; Minutes 19 May 1964, 3, CFA; Minutes 14-15 September 1965, 3-4, CFA; Minutes 19 April 1966, 2, 7, CFA; Minutes 25 January 1967, 5, CFA; Minutes 26 January 1967, 2, CFA; Minutes 15 September 1971, 1, 5, CFA; Minutes 12 July 1972, 3, 6-7, CFA; Minutes 14 August 1974, 4, CFA. Some promotional work was done, advocating for the master plan; see, for example, "Master Plan to Upgrade 'Third Rate' Zoo Urged,"

problematic, and that deficiency drew attention back to the building at intervals. For example, drawings were prepared for the repair or replacement of the skylights in 1969 and 1972.[96] In 1969, the perimeter skylights were replaced, and three years later, the plastic skylights installed over the indoor flight room during the DMJM renovations needed work to be made watertight again. In 1975, the roof again received attention. The perimeter skylights were covered and closed, and a stainless steel mesh was installed in the indoor flight room to keep the birds out of the trusses. The clay tile coping along the parapet was repaired as well.[97] Changes were made inside the building as a result of a curatorial shift that emphasized the "relationships between species."[98] In the mid-1980s, the

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Evening Star, 21 February 1961, clipping, National Zoological Park Vertical File, HSW. The Faulkner Fryer and Vanderpool plan, attributed to Avery Faulkner and landscape architect Lester Collins, was heralded as combining the Olmsted spirit with advanced ideas for displaying animals. Nature was brought into the city, and the "depressing" cages and fences jettisoned. Under their plan, the buildings were to disappear. "Time to Bring Nature Back to the Zoo," *Washington Post* 22 April 1972, clipping, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. See also, Theodore Reed to S. Dillon Ripley, memorandum 7 December 1971; Reed to Ripley, memorandum 17 May 1971; Reed to Ripley, memorandum 18 December 1970; and Reed to James Bradley, memorandum 7 December 1970; copies on file along with "Master Plan Report National Zoological Park Smithsonian Institution," 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[96] Drawings on file, NZP (NZP 71-05). In 1970 Zoo Director Theodore H. Reed updated Secretary of the Smithsonian, S. Dillion Ripley, on improvements at the Zoo. Reed was able to get some funding for repairs in the previous two years, money that paid for repairing the skylights in the Bird House that were omitted from the remodeling contract. Reed wanted to allocate funds for the continued repair work on existing exhibits, beginning with the most "dilapidated." He pointed to the old great flight cage, re-doing the pheasant cages, and the old owl cages ("before they fall down on the ears of the owls"). Reed also would like to "do something for the kiwis, …" and wanted to move toward the "de-emphasis on architecture" and "develop an environmental presentation." While this was true for the Bird House, Reed started to direct attention to the small mammal building which he likened to "a classical example of the menagerie-cage-prison-type of animal exhibition." Reed to Ripley, memorandum 18 December 1970, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA.

[97] Farrell, 128-29, 139; Smith & Smith Architects, drawings 1975, copy on file, NZP (NZP 75-15). The roof was a point of discussion between Secretary of the Smithsonian, Dillon Ripley, and Zoo Director Theodore Reed, in 1974 and 1975. Ripley was concerned about the quality of light filtering inside to the plants (and birds). He was also concerned about the appearance of the cages. Reed concurred with Ripley, "I agree with you that the cages in the birdhouse do need extensive work in cage decoration and in labeling. I am particularly distressed about the kiwi cage …" Reed also responded to concerns over the roofing: "The matters of the plastic roof of the great flight room is under consideration for a complete change to get rid of the lower layer of plastic and also to devise a method of keeping the birds from roosting on the support (particularly over the visitors' walk). This is a matter of time and money…" He continued, "Despite the filtering of light and dirt through the Plexiglas, the growth in the flight room has been very good; it is much better this last planting than the original was. Someday, we'll have a greenhouse there, …" Theodore H. Reed, through Dr. Challinor to Mr. Ripley, memorandum 25 January 1974, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA. This was in response to S. Dillon Ripley to Dr. Reed, memorandum 16 January 1974, copy on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. In September, Reed reported to Ripley that "pursuant to your desires and mine to get the Birdhouse fixed, i.e., ceiling of the great flight room, improve the lighting so the plants will grow better, change and improve air handling for cooling and heating, as well as painting the building, plans have been drawn and we are ready to go out for bids. (/) Because of the extensive duct and electrical work and the scaffolding necessary in the great flight room, the work can best be accomplished by vacating the Birdhouse and closing it for about five months." Theodore H. Reed through Dr. Challinor to Mr. Ripley, memorandum 5 September 1975, copy on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[98] Farrell, 139, who cites the 1977 *Annual Report*, 60. Earlier, but exhibit-specific changes occurred as well. For example, in 1968 Jenkins and O'Hear, architects, designed a new cage for the finches, and in 2000, changes were made to exhibit no. 8. Jenkins and O'Hear, "New Finch Cage at Bird House," drawings May 1968, copy on file, NZP (no number assigned); Einhorn Yaffee Prescott, "Bird Exhibit #8," drawings March 2000, copy on file, NZP (97260-01).

remaining skylight was fine-tuned, adding screws where there were none to secure and seal it as well as attending to the gutter system, including catchblocks and scuppers.[99]

Access to the building evolved after the DMJM renovations, beginning almost immediately with the retooling of the southwest entrance in 1968. This entryway, located under the elevated walkway to the Great Flight Cage, had concrete steps leading up to the door. These were replaced with a gently sloping ramp built on earth fill. The glass and metal frame vestibule was also created at this time; it had a concrete footing. The sidelights were designed so that the intermediate mullions were the same height as the push bars for the double doors. A transom light capped the doorway. The doorway into the Bird House itself had new casing built to integrate it with the vestibule. The side walls of the vestibule essentially repeated that of the front, with mullions placed at the height of the push bars and glazed panels above and below.[100] When this remodeling of the Bird House was complete, Smithsonian officials exclaimed that "with new planting and decoration it looks even lovelier than before."[101] Some minor changes must have been made the following year due to the gift of two kiwis; the Zoo's brown kiwis, and first hatching outside New Zealand in 1975, likely prompted the retrofitting of exhibit no. 9 for the kiwis and the removal of the fountain.[102]

In the mid-1970s, private or service access was enhanced. A receiving lift was added to the south end of the southwest elevation, opening into the basement at the foot of the stairway. On the opposite side, at the east end of the northeast elevation, a wood fence was erected and a door and stoop added to the service area surrounding the steps leading to the bathrooms in the basement.[103]

Areas around the Bird House were also a constant maintenance concern, and exhibit spaces were redesigned at intervals. During the 1970s, modifications to the Bird House involved its exterior exhibit spaces, yards, and approach walks. These were guided by the architects of the master plan then in effect, Faulkner, Fryer and Vanderpool.[104] The development of the Bird House hill included

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[99] Mark J. Mazz, "Bird House Renov[ation]. – Part. Basement & Roof Plans, Detail," sheet 4 of 7, drawing June 1984, copy on file, NZP (no number assigned).

[100] Jenkins and O'Hear, Architects, Landscape Architects, drawings April 1968, copy on file, NZP (6803A).

[101] *Smithsonian Year 1968* (Washington, DC: Smithsonian Institution, 1968), 418. This likely was a response to an in-progress review that offered one criticism (a "lack of small compartments for delicate creatures") and acknowledged that this deficiency could be corrected later. The main problem identified in the review was "correct decoration, planting and stocking of the large central hall and of the compartments… could have more palms, trees, creepers." Report 20 March 196[4 or 7], 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[102] *Smithsonian Year 1969* (Washington, DC: Smithsonian Institution, 1969), 251-52; on the kiwis at the National Zoo, www.nationalzoo.si.edu/Animals/Birds/Kiwi/default.cfm, accessed 13 April 2010. Three other hatchings have occurred, in 2006 (Manaia, who can be seen Monday, Wednesday and Friday mornings at the Zoo), 2008 (Koa), and most recently, in March 2010.

[103] Faulkner, Fryer and Vanderpool, Architects, "Bird House Hill Development," drawings August 1974, sheet A-6, copy on file, NZP (NZP 74-05).

[104] Faulkner, Fryer and Vanderpool, 1974, NZP. A report dated March 1975 indicated that work on the yards was proceeding on schedule despite the rainy weather, at least until that point. 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. Secretary Ripley again had definitive ideas about what he would like done at the Bird House. He liked the Olmsted Walk, questioned the hawk exhibit, suggested a walk-through exhibit for the cranes and pheasants, etc. Director Reed replied with regard to the hawk exhibit, providing the measurements (16'x24' to 24'x28') and saying "the philosophy … was to provide a space for predatory birds which would allow the

the installation of pools in the five narrow yards for cranes off the northeast elevation, and the larger yard at the east end, as well as the installation of the pergola over the walkway that skirted the Bird House on that side. Additional yards were created, such as the three to the south of the flamingo area, and landscaping filled in throughout the hillside. The plaza in front of the Bird House was converted into wetlands with three ponds for waterfowl. These were readied for the public by July 1975, and retooled in 1986 to provide the wood walkway and observation deck by the eagle cage and to move the eagle statue closer to the building. The number of ponds was also increased, to six.[105] The yards located off the south corner of the building were edged with a pergola, designed to correspond to the existing one, in 1977.[106] Initially built of wood, the south side pergola was rebuilt with concrete in 1984. Specifications for the in-fill fencing called for a black vinyl-coated wire mesh set within an aluminum frame.[107] The flamingo pond was modified in 1982, but these were more

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visitors to view the birds above and from below. This pavilion is adaptable to a variety of predatory birds. It is sited in an unusually dramatic part of the woodland portion of the park… [and by] treating the enclosure as a gossamer pavilion, the relationship of the birds to the trees in the ravine would be dramatic and appropriate." He told Ripley that the Zoo was "in the process of redesigning the [cranes and pheasant] exhibit spaces and promised Ripley a drawing to review. Moreover, the revamping of the exterior yards would "relieve the cluttered look" of the Bird House at present. S. Dillon Ripley to Messrs. Bradley, Brooks, Challinor, Reed, memorandum 1 May 1972, Ripley to Avery C. Foulkner, 6 July 1972, and Reed to Ripley, 22 May 1972, copies on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. On the Faulkner, Fryer and Vanderpool master plan, the Zoo selected the firm based on its past performance and projects as well as for its association with the landscape architect, Lester Collins. This was important because approval still had to obtained from the Commission of Fine Arts, and that body preferred greater emphasis on the landscape than on the buildings. The original master plan, dating to 1961, anticipated a ten-year building campaign to modernize the Zoo and resulted in a four-year construction campaign. That the Lion House (1891), Monkey House (1904), and the WPA buildings still needed rehabilitation spoke to the scale of the endeavor and the difficulties of implementing it. Letter 30 July 1971, copy on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[105] Farrell, 139, who cites the 1974 *Annual Report*, 106, 1975 *Annual Report*, 120, 1976 *Annual Report*, 121, and the 1977 *Annual Report*, 60. Materials from the National Zoo enumerate something of the history of the flying cages. The first flying cage (1901) was demolished in 1975, and new cages for eagles and owls were erected in 1979. A flying cage was taken down in 1995, although it is not clear from the list which one. The eagle cage constructed in 1932 was an indirect casualty of the 2004 wetlands boardwalk fire. It was removed during the clean-up effort. http://nationalzoo.si.edu/Animals/Birds/Exhibit/history.cfm, accessed 26 January 2010. The eagle statue was one of twenty-two statues resting on Penn Station in New York; the statues were designed by sculptor Adolph A. Weinman. The Secretary of the Smithsonian (Ripley) procured one statue for the Zoo in 1965, as the station was being demolished for Madison Square Garden. Of the twenty-two statues, thirteen were 60' high – this eagle was one of those and it weighed 5700 pounds. Since the Bird House was under renovation, the statue was placed to the side where it remained for little more than a decade. The statue was popular, and its loan to the US pavilion for the Montreal Expo so soon after its arrival, caused an outcry. "Grounded Eagle," clipping, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 50, SIA; "Eagle Leaves Zoo with a Heavy Heart," *Washington Post*, 1966, clipping, National Zoological Park Vertical File, HSW. Landscaping over the statue's former location was completed in May 1967, as well as the planting of azaleas and rhododendrons on the banks at the north end of the eagle cage and of fifty vines in the bird division areas. John Monday to John Perry, memorandum 10 May 1967, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[106] W.R. Dobbins, delineator, Planning and Design, "Modified Pergola Bird House Yards," drawing August 1977, copy on file, NZP (NZP-77-05); Taylor Garvin Architects, "Duck Pond Renovation," drawing August 1979, sheets 1-3, copy on file, NZP (no number assigned); Tri-Fab Inc./C.H. Riddle Construction Co., "Water Fowl Exhibit Renovation," drawings April 1987, copy on file, NZP (no number assigned); Design Tech – East, "Waterfowl Exhibit Renovation," drawings October 1986, copy on file, NZP (01-09-86).

[107] Mark J. Mazz, delineator, Office of Construction Management, "Bird House Renovation," drawing June 1984, sheet C-1, copy on file, NZP (no number assigned). The pergola to the east was rebuilt using cast concrete as well, although the drawings do not indicate it was part of this concentrated effort.

engineering upgrades than any change in size or shape.[108] Engineering or mechanical jobs of this type characterized work in and around the Bird House in the ensuing decades, although in recent years, work on a new walkway has begun; it will connect the Bird House hill to the Asia Trail.

This last redevelopment project (the Asia Trail) is this generation's effort to reinvent the National Zoo, to configure a great zoo for tomorrow out of yesterday's facilities, to improve on the building program of Mann in the 1930s and of Reed in the 1960s and 1970s so that

> The National Zoo [will be] an open university for the quiet celebration of life. Freedom is our goal – up to the limits of our capability, freedom for each animal to live safely, with health and vitality, to replenish its own while assisting in communicating to humankind its unique character and beauty. Freedom is our goal for each visitor, to seek and gain new understanding of animal life, or to sense simply in solitude the qualities of another living thing.[109]

The alterations to the Bird House embody these goals as the Zoo shifted from cage exhibits to more open methods of display through its Great Flight Cage, continued use of the core of the building as an indoor flight room for warm-weather birds, the yards for cranes, pheasants, and cassowaries, and the indoor-outdoor exhibit area for the flamingoes. The shift in how the aviary was presented for the public toward an interpretation that emphasized the relationship of species and their natural habitats is indicative of the Zoo's larger evolution from a collector and consumer of animals to one of conservation and even, in the case of the brown kiwi hatchlings, producers of animals. Some aspects remained constant throughout the Bird House's tenure, such as a desire for natural light and ventilation that was initially answered by the skylights, the use of flight cages, and specie-specific displays with appropriate temperatures and flora and with pools.[110]

B. Historical Context

In the 1890s, as the National Zoological Park began to take shape along Rock Creek and, in an assessment of what exhibits it should contain, the desire for an aviary was soon made known. Aquatic birds, such as swans and pelicans, could be accommodated in pools or ponds and remain in keeping with the tenets of the picturesque that landscape architect and consultant for the Zoo Frederick Law Olmsted recommended and then Secretary of the Smithsonian, Samuel P. Langley, embraced. The waterfowl exhibit was popular, and photographer Frances Benjamin Johnston immortalized the enthusiasm of visiting school children for the birds in her ca. 1899 photographs of the National Zoo. Captured on film are the swans and pelicans, as well as two birds perched in a small cage in front of the lion house (fig. 9).[111] These pictures illustrate the built

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[108] "National Zoo – Flamingo Pond Modifications," drawing March 1982, copy on file, NZP (no number assigned).

[109] [Statement of Purpose?], National Zoological Park, 15 October 1975, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA.

[110] The "fact sheet" for the Bird House today incorporates this duality (longstanding structure, modern purpose): "Home to hundreds of birds, the National Zoo's Bird House is one of the oldest exhibit spaces in the park. Many of the species on exhibit are endangered and are part ongoing National Zoo research programs to save their species in the wild. In recent years, the National Zoo has been successful breeding many of these species, including kori bustards, Guam rails, and North Island brown kiwis." http://newsdesk.si.edu/factsheet/nzp_fact-sheet.htm, accessed 26 January 2010.

[111] Johnston also photographed an art class sitting on a hillside and sketching the ducks at the National Zoo. See Frances Benjamin Johnston Collection, lot 2749, no. 064, Prints and Photographs Division, Library of Congress (http://www.loc.gov/pictures/collection/fbj/item/2001703625). The photograph of the elementary school children

environment of the Zoo's first decade, with predominantly outdoor exhibits consisting of paddocks, pools, and cages as well as some fencing to keep the animals in their habitats and the humans on a designated pathway.

Olmsted's vision for the National Zoo preserved much of its natural beauty by clustering anticipated buildings together and leaving the rest – including the so-called Missouri Valley (now Beaver Valley) – as undisturbed landscape. The paddocks spread out over the Zoo's acreage, however. In 1891, the first report on the Zoo, noted the acquisition of land and the first accommodations for bison, bears, prairie dogs, deer and antelope, and the two elephants. The latter were gifted to the Zoo and shelter hastily constructed for them. The accounting of animals under the care of the Zoo included a crow, a lark, several kinds of owls, hawks, a bald eagle, pea fowl, chicken, sealed partridge, a quail, a woodcock, a cariama, night herons, and a pied-billed grebe.[112] Present at the beginning, birds would soon require appropriate housing.

Early discussions about the form the Zoo would take considered how best to display the animals. William Temple Hornaday, who was the impetus behind the establishment of the Zoo, advocated for exhibiting birds with birds, exclusive of other species. It was also suggested that different species could be grouped together, like the tropical display in New York's Central Park, with the idea the National Zoo could build several of these buildings for climatically sympathetic species and use less expensive quarters for the others.[113] This approach dictated that some of the first birds at the National Zoo could be kept outdoors, such as the waterfowl or the eagles, and that resources were directed toward infrastructure for the necessary paths, roads, and bridges and for the animals whose habitats required more precautionary measures, such as the lion house designed by the architect W.R. Emerson. The flying cages and temporary bird house erected during the 1900s were popular exhibits, but were not long-term solutions.

One of the earliest shelters for the birds was a retrofitted frame building "formerly used for dogs" that Zoo officials converted into an ad-hoc aviary by adding outside cages and bathing pools.[114] Although not heated, this building afforded the birds some protection during the winter months, and likely led to the commission of Hornblower and Marshall in 1901 for the temporary bird house. Hornblower and Marshall's bird house

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looking at the aquatic birds can be viewed at http://www.loc.gov/pictures/collection/fbj/item/2002724129 and that of the children and the two caged birds at http://www.loc.gov/pictures/collection/fbj/item/2001702336.

[112] *Annual Report of the Board of Regents of the Smithsonian Institution… 1891* (Washington, DC: GPO, 1892), 48-52.

[113] Typescript, 23 May 1890, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 50, SIA. In a later letter to Olmsted (31 October 1890), Secretary Langley wrote as if an aviary was in the immediate building plans, along with a house for tropical animals and a buffalo barn. Places for sky birds and water birds were featured on the plan provided by Olmsted. The large animal house also allowed room for tropical birds. See figure 10. Funding for the animal houses was based on this concept of a large animal house for sub-tropical species with a separate structure serving as an aviary, monkey and reptile exhibit. This building was intended for birds, but due to start-up costs, it was to double as housing for the monkeys and reptiles as well. Frank Baker to Olmsted & Co., 18 August 1890, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 50, SIA.

[114] *Annual Report of the Board of Regents of the Smithsonian Institution… 1900* (Washington, DC: GPO, 1901), 86; Frank Baker to Richard Rathbun, Acting Secretary, 15 August 1900, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA. Likely this referred to the domestic dog exhibit enumerated in the 1897 *Annual Report*. With the exhibit, Zoo officials hoped to show both variations within a single species and typical examples of different breeds. The display of dogs at the Jardin d' acclimation in Paris was the precedent for the exhibit at the National Zoo. The Zoo's dogs proved popular with the public, but the dogs were very noisy. To mitigate this, the Zoo moved the dogs from the wood shelter constructed for them near the principal animal house to another site on the west side of the grounds. *Annual Report of the Board of Regents of the Smithsonian Institution… 1897* (Washington, DC: GPO, 1898), 57.

was also planned as a stop-gap measure but it was designed with consideration of its occupants' needs and each cage had its own skylight.[115] An addition for parrots soon followed, and a larger expansion containing one exhibit area (20' x 35') was completed in 1903.[116] This bird house was located in the heart of the National Zoo near the antelope house, aquarium, and small mammal house, and other buildings of the Zoo as Olmsted had intended.[117]

While conceived as a temporary measure to house the burgeoning bird population, the bird house continued to be altered and expanded to accommodate more and more of the feathered creatures. The influx of birds from the Zoo's flight cage at the 1903 exhibition in St. Louis, together with those living in the large flight cage in the warmer months, prompted two more changes to the building. One new cage was made for quail, thrushes, and cardinals and another for small species such as finches. The finch cage connected to an outdoor cage. Concrete flooring was installed in several of the existing, but more spacious, cages.[118] In 1906 there were 643 birds in the National Zoo.[119]

The health of the bird population pointed to the need for proper housing for the Zoo's feathered animals, and its future well-being was dependent upon the same. In the 1908 *Annual Report*, it was noted, in light of the Zoo's appropriation, that

> The wooden structures which originally sheltered the animals could therefore be replaced only as strict economy in administration expense permitted…There is also needed a new aquarium building, since the present structure, originally built in the most temporary manner for use as a hay shed, is fast falling into decay, and a general aviary, antelope house, inclosures [sic] for sea lions and seals, and a centrally located office building are much desired.[120]

These requirements were enumerated later in the *Annual Report*, including the acknowledgement that the bird house was over-crowded in the winter and that while its cheap construction may have saved money initially it left the building in almost constant need of repair. At this time it was recommended that the building be rebuilt.[121] It was not. Instead new concrete steps and walkways were formed to lead up to the building and a new roof covering put in place.[122]

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[115] Farrell, "Zoo Development, 1900-10"; *Annual Report of the Board of Regents of the Smithsonian Institution… 1901* (Washington, DC: GPO, 1902), 106. The building was heated; to save expenses, the Zoo reused equipment from the lion house.

[116] Housing a popular, but noisy type of bird was problematic for the Zoo during the winter. In the 1890s and in 1900, parrots at the Zoo moved into the main animal house but their presence there invited criticism (because the noise was annoying) so space was made for them in the bird house. The expansion of the bird house for the parrots was discussed in October 1901. Frank Baker to S.P. Langley, 9 October 1901, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA; also, "Hornblower and Marshall" file in 06-225 Office of Architectural History and Historical Preservation, Building Files, box 48, SIA; *Annual Report of the Board of Regents of the Smithsonian Institution… 1903* (Washington, DC: GPO, 1904), 68. The addition itself measured 50' x 35'.

[117] For a map of the zoo, see Plate I in the National Zoological Park report in *Annual Report of the Board of Regents of the Smithsonian Institution… 1904* (Washington, DC: GPO, 1905).

[118] *Annual Report of the Board of Regents of the Smithsonian Institution… 1905* (Washington, DC: GPO, 1906), 67.

[119] *Annual Report of the Board of Regents of the Smithsonian Institution… 1906* (Washington, DC: GPO, 1907), 40.

[120] *Annual Report of the Board of Regents of the Smithsonian Institution… 1908* (Washington, DC: GPO, 1909), 33.

[121] Ibid, 65.

Even as the bird house was patched and repaired, plans for a suitable aviary ***worthy of a national institution*** were reinvigorated.[123] An aviary was mooted in the 1890 discussions for the National Zoo and by 1912 the Zoo's temporary bird house was woefully inadequate as housing and the flying cages were strewn throughout the park. The Zoo hoped to build an aviary and place the cages for eagles and owls, condors and vultures in proximity to it. Costs for the aviary were estimated at $80,000, and the Zoo solicited the advice of the architect Glenn Brown for its design. Brown's sketches included a walkway to link the proposed bird house to the flying cage, and cages for the eagles, vultures, and hawks. The building was to be heated, and much larger than the existing bird house to improve the quality of light inside. Brown incorporated skylights into the design, as well as iron work for the cages. Plans for the new bird house were vetted through the Municipal Architect's office in January 1913, in accordance with the new law regarding construction in the park that placed architectural projects under the jurisdiction of that office and bridge projects under the District's Engineer. Comments from the Municipal Architect's office touched on key concerns for the Zoo – costs, of course, but primarily the need for light and ventilation as well as room for the birds to fly in the building. At this juncture, Brown's plan for the aviary included a central portion with two wings. It also featured a utilitarian extension for storage and feed rooms.[124]

Although it appears that 1912 was a watershed year – due to the legislative change in how buildings were designed and erected in the National Zoo and the animal houses Superintendent Frank Baker outlined as necessary for any comprehensive Zoo – discussions about the architectural development had been on-going. The Olmsted firm remained engaged in the Zoo from the beginning and, with the clarity of hindsight, noted in 1902 that

> It was a wise and fortunate policy, as well as one required by the limited appropriations available, to adopt cheap and temporary arrangements for the housing and enclosure of most of the animals while a good knowledge was being secured of all the local conditions and of their effect on many classes of animals. Where more confidence was felt in the suitability of certain places for certain animals more permanent structures were provided; but even some of these decisions, as in the case of the bear-pits, turn to have been too hasty and would not now be repeated…[125]

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[122] *Annual Report of the Board of Regents of the Smithsonian Institution… 1910* (Washington, DC: GPO, 1911), 68; *Annual Report of the Board of Regents of the Smithsonian Institution… 1911* (Washington, DC: GPO, 1912), 60.

[123] The *Annual Report* stated that the present "wooden building in which the larger number [of birds] are kept is too small, too low, insanitary, and really unworthy of a national institution." *Annual Report of the Board of Regents of the Smithsonian Institution… 1912* (Washington, DC: GPO, 1913), 79. Proper housing for the birds in the Zoo also meant an architectural commitment to the idea of the National Zoo and a representation of what that meant.

[124] *Annual Report of the Board of Regents of the Smithsonian Institution… 1914* (Washington, DC: GPO, 1915), 85-86; See "Proposal for Aviary" in 06-225 Office of Architectural History and Historical Preservation, Building Files, box 48, SIA. Documents date from May 1912 through January 1913, although Brown worked with the Zoo off and on since its conception, including supervising the construction of the flight cage in 1901. The Zoo turned to Brown as early as 1910 for his guidance in "devising a general scheme for the arrangement and style of future buildings in the Park." Letter to Brown, 20 June 1901 and September 1910, copies on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 48, SIA. Quotation, 1910.

[125] Frederick Law Olmsted, Jr., to Samuel P. Langley, 10 April 1902, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 50, SIA.

Olmsted continued, acknowledging Baker's concerns about animal care, by saying that "in the meantime the animals and the rapidly growing public who use the park have to put up with inadequate and shabby accommodations…"[126] These observations were made within the context of the firm's recommendation to Secretary Langley that they be retained as consultants for three years during which time they would draw a comprehensive plan based on local conditions, the collection, and the experience gained over the preceding decade. Criticisms of the Zoo at that time included public use, such as insufficient maps, signs, and cage labels, and more seriously for the animals, inadequate provisions and cramped cages. Some of the bird cages were so small the macaws and parakeets "could not even turn around without spoiling their tails." Although the temporary bird house alleviated these conditions, it still needed a storm door on its north end to mitigate against the cold drafts blowing through the building.[127] However, Langley died in 1906 and Baker suspended any further work. He did so because he anticipated that Langley's successor in office would have ideas for the future development of the Zoo, and that those ideas may or may not be in accordance with what the Olmsteds, Langley and he had determined.[128]

Nonetheless Baker continued to plan and to recommend improvements to the Zoo grounds, including the effort in 1912 that outlined buildings needed in order for the Zoo to truly come into its own as a national institution. Baker looked to the building types, dimensions, and costs found in the New York Zoological Park as a foundation for the National Zoo's architectural program. Drawing on his experience, as well as what the New York Zoo had done, Baker included not only the general aviary designed by Brown but also a house for ostriches, emus, and cassowaries, a pheasants' aviary, a house for tropical waterfowl, and finally a house for tropical birds of prey. The general aviary was intended for a site closer to the great flight cage, removed from and west of the temporary bird house.[129]

Perhaps it was Baker's seeming autonomy at the Zoo that prompted Langley's successor, Charles D. Walcott, to have Smithsonian expert and exhibition planner Frederick W. True walk through the Zoo in April 1912. True thought Baker had been "too free to do what he wanted" in recent years, and correspondence suggests he was displeased Baker did not consult him on projects from walkways to the boiler house. True disliked the plans for the aviary (as well as one for a concrete bridge), but his primary complaint with Baker's operation of the National Zoo is that he learned too late of construction projects, either they were completed or too far along to be altered.[130] True called for a "definite direction of [the Zoo's] activities" and one way to accomplish that would be to require Baker to seek permission and written approval before undertaking any improvements.[131] True's recommendations to the Secretary dovetailed with the legislation, dated to June 1912, that placed responsibility for architectural work in the National Zoo in the Municipal Architect's office of the city. This had to do with funding allocations, but was possibly welcomed by the Smithsonian as one way of controlling the shape and appearance of the Zoo. In any event, Baker submitted his plans for the Zoo to True for review.

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[126] Ibid.

[127] [to Olmsted] "Suggestions for the Improvement of the Zoo," 11 May 1902, copy on file, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 50, SIA.

[128] Frank Baker to the Olmsted Brothers, 21 March 1906, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 50, SIA.

[129] 06-225 Office of Architectural History and Historical Preservation, Building Files, box 50, SIA.

[130] Frederick W. True to Charles D. Walcott, 8 April 1912, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 51, SIA.

[131] Ibid.

While True concurred with Baker's list of buildings, and with their proposed location, his notes reveal a few criticisms, including commentary about the aviary. The suggested site for the birds was near the main entrance, but True was concerned about how they would look from that vantage point. He also thought the space around the aviary was inadequate. Its proximity to the road might increase accidents. Without a path to walk along, zoo-goers would have to be on the road. Moreover, the one walkway to the aviary and ostriches opened into the road, which, as True noted, was "a bad arrangement." Topography dictated the placement of houses for birds of prey and for pheasants, and the aforementioned path wound past the south side of those structures. Unfortunately, from an exhibition perspective, it meant that visitors would have to look up to see them.[132]

Comprehensive plans for the Zoo remained under discussion into 1914, and for the *Annual Report* that year Baker described the "National Zoological Park and its Inhabitants."[133] Baker continued to press for buildings for the care of the animals under his purview, and the urgency he felt seeped into the *Annual Reports*. In 1915 calls for funds for an aviary and a building for pachyderms were again made. The "progressive deterioration" of the bird house necessitated more repairs, including finally pouring concrete for a floor rather than replacing the wood for a third time. It was said that the bird house was "an example of the ultimate costliness of cheap temporary construction."[134] Baker retired in 1916.[135]

While the conditions in the temporary bird house worsened – "becoming unfit for use" – in the late 1910s and into the 1920s, Baker's successors bumped up against the same budgetary wall.[136] Finally, in the late 1920s, almost forty years after its establishment, the Zoo began to get its animal houses. Zoo Director, Dr. William M. Mann, and the Municipal Architect, Albert Harris, worked together to create a bird house and a reptile house. Building projects were suspended until public works money began to flow in the mid 1930s as the country struggled to escape the Great Depression. Mann, who had experience negotiating the intricacies of the legislation governing Zoo finances and Zoo architecture, proved adept at managing both the funding and the hiring requirements of the New Deal program. The initial suggestion of bringing the Chicago-based architect Edwin Clark into the Municipal Architect's office (then under Nathan Wyeth) is an indication of this; once clear about the regulations, Mann had Clark work through the Treasury Department.[137]

It was during Mann's tenure (1925-56) at the Zoo that the long-time campaign for proper, purpose-built houses for the animals of the Zoo became overtly mingled in the idea of the institution as "a credit to the nation" and a facility on par with the premier zoological parks of other countries.[138] The architectural

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[132] Frederick W. True to Charles D. Walcott, 15 December 1913, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 51, SIA.

[133] *Annual Report of the Board of Regents of the Smithsonian Institution... 1914*, 445-78.

[134] *Annual Report of the Board of Regents of the Smithsonian Institution... 1915* (Washington, DC: GPO, 1916), 26, 79. Quotation, 79.

[135] *Annual Report of the Board of Regents of the Smithsonian Institution... 1917* (Washington, DC: GPO, 1918), 71-72.

[136] *Annual Report of the Board of Regents of the Smithsonian Institution... 1919* (Washington, DC: GPO, 1920), 19, 78. Quotation, 78.

[137] Memorandum 8 February 1935, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 51, SIA.

[138] C.G. Abbot, Secretary, to Col. D.R. Sawyer, Co-administrator, Public Works Administration, 7 July 1933, copy on file, 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA. Although argued more persuasively by Mann, the idea of building animal houses worthy of a national institution was not new (see Baker's

development of the park under Mann was the National Zoo's coming of age. Mann traveled extensively, adding rare creatures to the collection. He refashioned the landscape of the Zoo in order to exhibit his prized species. His projects at the Zoo eliminated much of the picturesque but temporary, or even tentative, enclosures. Robust buildings and iconography, plazas and paths replaced the wooded landscape and impermanent shelters. The Bird House was his first effort. Its form may not be what Olmsted, Langley or Baker envisioned, but its construction fulfilled their repeated requests for an aviary. Its remodeling in the 1960s and the building of the adjacent Great Flight Cage with soaring parabolic arches echoed the excitement over Baker's design in 1903 for a walk-through flying cage to be erected in St. Louis for the exposition. This flight cage was to represent the National Zoo, to be an innovative and interactive display that would announce the Zoo's presence and bring it to life. The very latest in technology heralded first the emergence of the National Zoo on the international scene at that world's fair and then its rebirth in the 1960s as a contemporary or modern park.

Part II. Architectural Information

A. General statement

1. Architectural character: Although originally a dramatic architectural statement with characteristics of the Romanesque and Byzantine Revivals, stylistically the Bird House today is a pale reflection of Dr. William M. Mann's interpretation of the National Zoo's vitality through its exhibit spaces housed in permanent, purpose-built structures conceived on a grand scale and adorned with zoomorphic ornament. In the 1960s, the frontispiece and vestibule area was taken down and a smaller, glass and concrete entry erected in its stead. Perimeter skylights were closed, and the Great Flight Cage to the southwest was constructed. It was connected to the Bird House by way of an elevated walkway. These were radical changes to the Bird House and were done as part of a modernization of the Zoo. As it was in the 1930s building program, the Bird House was renovated early in this campaign to upgrade the Zoo's facilities. It was remade in the architectural currency of the day that shunned traditional or historical embellishment and expression. Concrete replaced ornament, and thus eliminated much of the building's architectural personality. Hints of the initial style remain in the cornice and in the two extant panels carved by Domenico Mortellito. While largely denuded of its aesthetic program and extensively altered on the interior, the Bird House was subjected to such heavy-handed renovations for much the same reason as that that had prompted its initial construction: an intention by the Zoo director to demonstrate the health of the Zoo as an institution and to provide better care and living conditions for the animals in its charge.

2. Condition of fabric: The Bird House is in fair condition and is maintained with an emphasis on the health of the birds. It does, however, show signs of wear consistent with continual use by people and animals and of deterioration due to water. Visitors follow the circulation patterns established in the 1960s renovation, as evidenced by the wear in the concrete floor, but even so, the handrails, ramps, and benches are in good repair. Moisture for the birds' health and habitat, and water to clean up after them, have taken a toll on the building fabric and earlier studies have noted the effects on the brick, wood, concrete, and metal elements.[139] Algae is visible on the wood fences separating the outdoor exhibit areas and the wire-mesh ceilings over several of the outdoor exhibits collapsed from the pressure of the (blizzard-proportion) snowfall in February 2010. These are currently being rebuilt (May 2010). The community cage also appears to be under renovation or repair.

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request for an aviary in 1912 for example). Mann finessed it. *Annual Report of the Board of Regents of the Smithsonian Institution... 1912*, 79.

[139] See, for example, Farrell, 130-31, and NZP reports on the roof (2005) and facilities assessment (n.d.).

B. Description of Exterior

1. Overall dimensions: The Bird House is a tall one-story building with an upper level in the indoor flight room and a basement. It is a square-shaped building that measures approximately 133' x 130' on the exterior and includes an indoor flight room measuring about 72' x 51' at its core. The length of the basement runs to 131'. The basement houses a cage area measuring just over 40' x 25.' A portion of the basement, on the north side of the building, is an inaccessible crawl space with a dirt floor. The main entrance consists of a projecting glass vestibule (approximately 10' x 15') located towards the north end of the northwest (front) elevation; on the southwest elevation there are entries to the main floor as well as to the upper level of the indoor flight room by way of the elevated walkway from the Great Flight Cage. Exterior stairs are found to the east.

2. Foundations: Concrete.

3. Walls: Brick. The bricks of the exterior walls are laid in a 5:1 common bond.

4. Structural system, framing: Load-bearing masonry. There are also reinforced concrete beams and slabs span the lower – outer – roof areas of the building while steel trusses support the skylight of the high roof over the indoor flight room.

5. Porches, stoops, balconies, porticoes, bulkheads: The Bird House proper is encased by cages and exhibit yards rather than by porch-like additions, with the exception of the vestibule at the main entrance of the building. Made of plate glass with a metal frame, the vestibule serves as a transitional space from the exhibits surrounding the Bird House and from the larger Zoo campus to the interior display areas. The glass enclosure fits within a larger concrete shell with a curving roofline and is reinforced on the interior by two columnar supports made of concrete placed to either side of the entrance into the building. Beneath the sculptural roofline of the vestibule, its rounded ceiling is akin to a barrel vault. Entry is by double doors to the northeast and southwest sides of the vestibule; like the vestibule walls, the doors are glazed. The glass is set in a metal frame that includes a push bar. The doors open out.[140] To the west of the main entrance is a concrete bridge designed with the same sweeping effect as the vestibule roofline and frame of the Great Flight Cage. This bridge provides an elevated walkway that connects the Bird House proper to the Great Flight Cage. Beneath it is another entrance, also with a glass and metal vestibule (measuring almost 6' x 10'). The vestibule has glazed double doors placed in alignment with those leading into the building.[141] North (proper right) of the vestibule is a straight run of precast concrete steps rising up to the elevated walkway; there is a landing two-thirds of the way up the stair. The stair has reinforced concrete sidewalls in lieu of the traditional balustrade and stringer; the metal handrail is attached to the concrete, parapet-like sidewall in distinct intervals by way of a scrolling, stainless steel tube.

Around the perimeter of the building are smaller flight cages and exhibit yards for birds, as well as walkways for the viewing public. In front of the Bird House is a wetlands exhibit area. Moving clockwise from the wetlands and front entrance vestibule are cages and yards for owls, cranes, kori bustards, and storks. The owls are housed in an outdoor flight cage made of steel frame enclosed

[140] There appears to be doors (entirely of glass) in the front wall of the vestibule; these no longer are used and landscaping prevents any causal mistakes by visitors trying to access the building from the northeast.

[141] This vestibule was added in 1968 to provide an accessible entrance to the building; see Jenkins and O'Hear, 1968, NZP.

with wire mesh on a concrete foundation. The roof over the cage is flat, also with mesh on steel support beams.[142] The cranes, kori bustards, and storks are kept along the northeast side of the building in yards created by the end wall of the Bird House and the asphalt and brick-paved walkway beneath a precast concrete pergola.[143] Side walls are made of wood and wire fencing. Most yards have a wood shelter or utilitarian structure set to the back of the display area (toward the Bird House) as well as water features, such as small ponds. Between the pillars of the pergola is a metal mesh or wire-like fencing. Continuing along the walkway is a cluster of exhibition areas for vultures, seriema, spoonbills, white-cheeked pintails, hamerkops, and northern pintails; just beyond those are the flamingoes. Not all the yards are inhabited. This is especially true along the southeast (rear) elevation and south corner of the Bird House, where there is a precast concrete pergola-like structure lining the front of the yards for the flamingoes and cassowaries.[144] The last display before returning to the wetlands and vestibule of the building is the community cage. It is similar to that designed for the owls in that it is essentially a large, wire mesh structure with a concrete base. This cage, however, has pyramidal roofs over each section and adjoins the building at the west corner of the southwest elevation, behind exhibit no. 22 on the interior. It is octagonal in plan.[145] Along the walkways at the outer edge of the yards is a wrought iron pipe railing. By the railing are the interpretative signs identifying the various birds and their preferred habitats.

Exhibit no. 8 protrudes from the middle of northeast elevation. Glazed in its entirety, the habitat extension is rectangular-shaped in plan and has a shed-roof.[146]

6. Chimneys: Plans drawn by Albert Harris in the late 1920s indicate that there was a steel, exterior stack at roughly the mid-point of the rear (southeast) elevation of the building. This was for the boiler room. The chimney was replaced in the mid-1930s with one made of brick.[147] This chimney

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[142] In 1976, the *Annual Report* noted that the architect R.S. Dame provided drawings for an "oval-oid cage on the north corner of the Bird House." The new cage was not connected. This must have been the present owl cage. Farrell, 139, who cites the 1976 *Annual Report*, 121.

[143] This pergola was added during the initial Faulkner, Fryer and Vanderpool development of the Bird House hill, and is shown on sheet A-3. Faulkner, Fryer and Vanderpool, 1974, NZP.

[144] The Zoo installed this pergola in 1977. Drawings from August 1977 call for rough sawn oak structural members; the oak was to be stained gray and the metal fastenings coated with a rust inhibitor. The wood structure was replaced with concrete seven years later. See Dobbins, 1977, NZP.

[145] This was part of the DMJM renovations of the mid 1960s. DMJM, "NZP – Phase 1, Project Drawings, Community Cage 'F' Plans, Section, and Elevation," sheet A-25, NZP.

[146] Drawings relating to this exhibit space are on file at the National Zoo, see NZP 99032 and NZP 97260-01. Glazing on the back is in eight bays with the lights in top panel measuring almost 4' wide and almost 3' high; the lower panel has lights measuring almost 4' wide and 7' high.

[147] *Annual Report of the Board of Regents of the Smithsonian Institution… 1934* (Washington, DC: GPO, 1935), 48. Mann reported that "Beginning in November activities were considerably expanded when the CWA took over the supplying of labor, both skilled and unskilled, and some money was made available for the purchase of materials to be used on the projects. This permitted the undertaking of a considerable volume of urgently needed work which could not be previously attempted. The more outstanding repairs and improvements undertaken with CWA materials are as follows: …" First on the list was the "construction of [a] brick smokestack at [the] bird house to replace the metal one that was in very bad condition." Other projects at the Bird House included the construction of a large cage for condors and lammergeyers; the construction of a service road between the silver gull cage and the Bird House; and revision of plans for the "completion of the bird house."

was removed in the 1960s, and the present brick chimney constructed to the right of the concrete panel carved by Mortellito that depicted two dodo birds. Several of the top courses of the chimney appear to have been rebuilt.

7. Openings

a. Doorways and doors: The main entrance has double doors made of wood and glazed with one light placed in the upper half of each leaf. The doors are set within a utilitarian frame and hung by butt hinges; there are also door closures on the exterior and metal kick plates on the interior face. The door pulls appear to be aluminum and are placed on an angle, a position which gives them a sleek look in keeping with the tenants of the 1960s renovation that embraced modernism. Utilitarian, not-for-the-public, single doors made of metal open into the building at the foot of the stairs into the bathrooms at east end of the northeast elevation. The east door has a concrete sill and a transom light; the north door has two louvered panels. The transom light is closed. Also for service purposes are two metal doors that open from the south and east ends of the southeast (rear) elevation.[148] The south doorway is further secured by a cage adjoining the entrance. The vestibule cage is fashioned out of metal pipe supports and wire mesh. A single door made of wire mesh opens from the vestibule cage into the yard. Double doors, with metal frames and mesh infill instead of glazing, open out onto the elevated walkway leading to the Great Flight Cage.

b. Windows and shutters: The arched windows (eight, arranged in groups of four, on the southeast (rear) and northwest (front); nine in a single row on the northeast and southwest side elevations) have been closed. These are located in the upper register of the central block, just below the skylight over the indoor flight room, and served as clerestory lights in the original building. Along the front façade, there are six single window openings, one to each end and the remaining four placed in twos to either side of the entrance vestibule. Only two (west of the vestibule) open into public space today. Those on the north end light the service hallway. Similar openings are shown on the 1962 plans (1966 "as built") by Daniel Mann Johnson and Mendenhall at the north end of the northeast side elevation; two of the three were closed in the DMJM-era renovations. Another single window, glazed with one pane, with a metal frame is found in the southwest elevation between the bridge and the community cage.[149]

At the foot of both exterior staircases is a double hung window glazed with six lights in the top sash. The lights in the bottom sash are screened with a metal mesh or hardware cloth.[150] The window frames are made of metal. Nearby, also at the eastern end of the northeast elevation, are two louvered and screened openings. These are on the main floor level. The rear wall of exhibit no. 14 is glazed with insulated glass; on the exterior elevation, this appears as eight large, square lights.

8. Roof

a. Shape, covering: The high roof over the indoor flight room is made of open-web steel trusses and a plastic, vaulted skylight. A metal mansard roof was built to cover the edges of the skylight system. The remainder of the roof is flat, and the roofing material is a modern membrane.

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[148] The door at the east end opens from the service corridor that wraps around the east corner of the building. It is unclear from the plans how this space is accessed from inside the building, unless it is from one of the cages.

[149] Inside, the window looks into the duck exhibit (no. 22).

[150] An interior photograph taken in the bathroom shows that the bottom sash is glazed in two, horizontally-oriented lights. The glass is obscured and there is a small curtain to aid in privacy. Field photographs, spring 2010.

b. Cornice, eaves: The parapet has an arched detail in colored, cast concrete with glass insets that runs beneath several courses of corbelled bricks. It is capped by a clay tile coping. The parapet is a remnant of the original decorative program and it is the only extant trace in the building today of what is likely John Joseph Earley's work.

c. Dormers, cupolas, towers: The surface of the roof is punctuated by ventilating stacks, by HVAC equipment, by interior gutters, drains, and catchblocks, and by skylights. The skylights have been covered, and the arched clerestory lights to the indoor flight room closed.

C. Description of Interior

1. Floor plans: At the heart of the Bird House is the indoor flight room; it is accessible by way of concrete ramps leading up from the main floor, from the ground floor on the southeast side, and from the elevated walkway connecting the building to the Great Flight Cage outside. Surrounding the indoor flight room are smaller exhibits arranged along the perimeter corridor. There are two interior stairways leading down to the basement. The space on the basement level has been partitioned into a service elevator area, bird cages, an incubation room, refrigeration and other (animal) storage, offices and locker rooms for staff, and mechanical equipment.

2. Stairways: There is an uninterrupted walkway that leads up to the observation level of the indoor flight room by way of two ramps, each made with concrete sidewalls. The walkway is a continuous incline, beginning at ground level at points to the northwest and northeast and then turning at a right angle to rise up along the interior walls of the indoor flight room to meet at an observation level at the south corner. To the northwest, there is an aluminum pipe handrail attached to the masonry wall of the indoor flight room that serves as the inside edge of the ramp and a wood handrail at the outer edge. Around the corner (to the northeast), the ramp's handrail is made of aluminum pipe and the concrete sidewall is faced with wood strips. Inside the indoor flight room, there are also handrails to either side of the passageway: one made of wood and the other, against the wall, of metal.

Presently there are two service staircases connecting the main floor to the basement and a metal ladder for access to the attic and roof hatch. The stair in the south corner of the building (behind what is now exhibit no. 18) is a quarter-turn stair with a quarterspace landing. Utilitarian in character, it is made of concrete with corrugated metal safety treads and a metal pipe handrail and balustrade. The stairwell has brick and concrete block walls. The second staircase is a straight run with a landing two-thirds of the way up. It is made of metal and there is a pipe handrail affixed to the wall of the stairwell. The surface of the treads is a checkered plate for traction. This stair is located at the east corner of the indoor flight room. Access is by way of a single door southwest of the Bird Resource Center on the main floor; the steps descend from this doorway and enter into the basement between the mechanical room and the food preparation areas.[151] The ladder to the attic level and roof hatch is found in the service hallway at the north corner of the building; the upper portion of the ladder is enclosed by expanded metal. The ladder has a pipe handrail and checkered plate treads.
The exterior stairs are made of concrete. They descend in a single run to the basement level and provide access to the men's and women's bathrooms. At the foot of each stairway is a drain. There is a metal pipe handrail for each stair as well.

[151] Originally this was a quarter-turn stair with a landing that was just northeast of the boiler room. The turn was removed and a single run created during the 1960s renovations.

3. Flooring: With the exception of some patches of terrazzo in the service corridor in the south corner that provides access to adjacent cages, to the dumbwaiter, and to the staircase to the basement, the flooring of the Bird House is predominantly made of concrete. The exception is the tile floor of the basement bathrooms. On the main floor, in the public spaces, the concrete was poured in 13" x 13" squares and the polished or smooth surface appearance seen today likely due to wear as some traces of aggregate are evident behind the railings in front of the exhibits. In the exhibit spaces, water features and plant materials hide the concrete and provide the birds with familiar surroundings to those they would seek in the wild. In the Bird Resource Center, carpet covers the concrete.

4. Wall and ceiling finish: The ceiling in the indoor flight room is skylit, while that in the outer loop of exhibits is a dropped ceiling with gypsum board tiles.[152] The walls are made of masonry along the exterior of the building and around the indoor flight room, but the exhibit spaces are further defined by glass, tension wire, and translucent plastic. Aluminum pipe railings line the outer edges of the cages, helping create safe distance between the birds and their visitors. Beneath the railings the low front, public-facing walls of the exhibits are made of concrete, although some also have a rectangular panel of coarse aggregate inset for visual interest. The decorative frontispiece for the original entrance to the building was re-set in the indoor flight room, around an arched opening now closed with metal mesh or a hardware cloth. Portions of the public spaces have a wood slat wall covering; this is seen primarily in the east corner of the main floor near where the kiwi's habitat (exhibit no. 9) is located. The basement is characterized by a suspended ceiling, painted masonry walls, and concrete, vinyl, or dirt flooring. The bathrooms, however, have white (4" x 4") tile wainscoting trimmed in a border of light blue tiles. Alternating decorative tiles, one with a squirrel and the other with an owl, complete the ensemble.

5. Openings

a. Doorways and doors: All of the interior doors to the Bird House are utilitarian in character. Most are metal, single doors, particularly those in the basement as well as the service doors into the exhibit areas. Many also have a louvered panel, and some have a glazed light above where the lock rail of a paneled door would be. The glazing is either clear glass or wire glass. Closets in the sections of the Bird House that have the wood slat walls have hollow-core wood doors to be in keeping with the aesthetic. In the basement, the doors into the incubation room are double doors fashioned out of wood frames and screens while the doors to the indoor flight room are metal frames filled with a tight metal mesh. On the main floor and at the lobby to the elevated walkway, the entrances to the indoor flight room have double doors; on the ramp, there are single doors. The double doors on the main floor are flanked by sidelights, two to each side. The four operable doorways to the indoor flight room are further defined by thick, clear plastic strips, an additional measure to keep the birds where they are intended to be.[153] The plastic is also found at both doorways on the elevated walkway, reinforcing the security of the glass doors. The kiwi viewing area has heavy, dark brown plastic flap (akin to a curtained doorway) at both entrances to keep the light out. (Kiwis are nocturnal). The door to the Bird Resource Center is a wood Dutch door, meaning the upper and lower portions can opened or closed separately.

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[152] The dropped ceiling was installed after HVAC work was done in 1995 and 1996. Drawings for the HVAC are on file at the National Zoo (NZP 454001).

[153] The double doors at the foot of the northwest ramp are closed with a sliding bolt lock and a padlock and further barred by a wood block placed across the base. This doorway is not for the public to use.

b. Windows: The window openings to the Bird Resource Center are filled with Plexiglas and lack decorative surrounds. The six single windows cut into the main floor level of the northwest (front) elevation have plain reveals and sills. The three on the north end, that look into the service corridor, are screened with black cloth that is intended to filter or obscure views to the private spaces of the building from the outside. The two bathroom windows are similarly recessed from the interior wall plane and have plain reveals. The wall tile runs up and over the sill. The interior of the arched clerestory windows is still visible, albeit reduced to a rectangular vent in some instances.

6. Decorative features and trim: The interior is utilitarian in character, with primary attention paid to the habitat of the birds and so perches, water, rocks, and plants feature prominently.[154] The only decorative element of note is the painterly surround of the arched doorway in the indoor flight room. This portal was originally designed for the main entrance of the building, but was installed here when the Bird House was renovated in the 1960s. Although murals were painted as backdrops to the exhibits in the 1930s, only two cages have scenic walls today.[155] One, tropical in flavor, is along the southeast wall (between Cricket (exhibit no. 18) and the kiwi (exhibit no. 9)) and the other is adjacent to the northwest ramp to the indoor flight room. The latter features one wall painted with white clouds and blue sky; the remaining enclosure consists of tension wire.[156] Other cages have painted walls, but those are monochromatic. Photographs and interpretative materials are displayed on the walls of the public spaces.

7. Hardware: Hardware in the Bird House relates to openings, either as hinges for doors or latches to secure them, and includes lever handles, door knobs, surface-mounted hinges, kickplates, door pulls and push bars, door closures, door stops, deadbolt locks, and padlocks.

8. Mechanical equipment: The Bird House has a modern HVAC system, plumbing, and electricity.[157] A dumbwaiter was installed in the 1960s, in the south corner of the building, providing access to the service corridor and basement. A few years later a freight elevator or receiving lift was put in to further ease the movement of materials between floor levels.[158]

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[154] Work in the 1930s provided for tree sockets in the floors of the exhibit areas; pipe sleeves provided by the National Park Service were set into the floor as the concrete was poured, so trees were part of the planned environment from almost the moment of installation. William A. Miller, Construction Engineer, to Supervising Engineer, 1 October 1936, National Zoological Park, Bird House, General Correspondence and Related Records, 1910-39, Public Buildings Service, RG 121, NACP.

[155] The 1959 *Annual Report* stated that the interior of the Bird House was repainted, and that the cages in the "new" wing were redecorated, suggesting that the mural backdrops were painted over or obscured during this bout of sprucing up. If they survived this redecorating effort, then they disappeared during the DMJM renovations of the 1960s. *Annual Report of the Board of Regents of the Smithsonian Institution … 1959* (Washington, DC: GPO, 1960), 187.

[156] This currently is exhibit no. 2. The tropical scene is in exhibit no. 11.

[157] In 1995 the overhaul of the HVAC system began. A chiller was placed on the east side of the roof, and the next year new ductwork was installed, two exhaust fans were removed from the roof, and two new HVAC units were installed on the south end of the roof. Farrell, 139-40. Also, drawings on file, NZP (NZP 454001). Additional drawings on file at the National Zoo indicate that the sewers for the flight cage were relocated in 1966 (NZP 641C; NZP 38-8-64); that the water systems were improved in 1978 (no drawing number) along with the extension of the electrical distribution (NZP 7704); that there was a utility master plan outlined in 1985 and a renovation of utilities planned or begun in 1999 (NZP 97290-14); and finally that the emergency generator was upgraded in 2004 (NZP 04331-17B), the water main in 2005 and 2007 (NZP 0533144), and fire protection in 2008 (NZP 0733104). High voltage service was extended in 2000 (NZP 0000204).

[158] This was part of the 1974-75 development of the Bird House hill; the elevator served the basement level and was

9. Original furnishings: In February 1936, Zoo Director William M. Mann wrote to Louis Simon, the Supervising Architect of the Treasury, to make a case for adding "some permanent benches in all of the new buildings." Mann continued, writing that "These I think should be of a design suitable for the individual building and made of some indestructible material such as terrazzo, or similar to those in the wading bird house at the zoo in Chicago."[159] In the Bird House today there are two built-in benches. The first is made of wood and integrated with the Bird Resource Center in the east end of the 1930s wing, while the second is a concrete bench with a smooth seat and a rough cast base and a concave elevation. The base of the bench is identical to that used for the front of several exhibit cages. The concrete bench is placed just off-axis with the secondary entrance on the southwest side of the building. At the observation level of the indoor flight room a wood bench (with a back) was installed; there are also two benches with wood seats in the lobby area between the observation level of the indoor flight room and walkway to the Great Flight Cage.

D. Site

Originally conceived as a place of refuge for the endangered American bison, the National Zoological Park was proposed by William Temple Hornaday, the chief taxidermist of the Smithsonian's National Museum. Hornaday's concept for a National Zoo centered on the protection of North American species, like the bison, whose populations were disappearing at an alarming pace, just as the animals Hornaday studied in order to make the museum exhibits more accurate and life-like became a passion in their own right. The Smithsonian allowed him to set up a small zoo behind the Castle building on the mall in 1887. His exhibits were immensely popular. Sensing an opportunity, Hornaday built on his initial success and campaigned for a true National Zoo. His efforts culminated in the Zoo's founding legislation in 1889. Hornaday's Zoo had a duality of purpose from its beginnings: scientific study and recreation. Catering to the public who paid for the National Zoo seemingly won out over Hornaday's vision for a nature preserve for the conservation of various species, and early architectural choices reflected this imbalance. Unhappy with the evolving design of the Zoo, Hornaday departed for New York (the Bronx Zoo today) in 1890.[160]

Secretary of Smithsonian Samuel P. Langley, with whom Hornaday disagreed, and Frank Baker, who was Hornaday's successor, laid the foundations of the fledgling Zoo. They sought the advice of landscape architect Frederick Law Olmsted, who drafted a master plan in 1890 and whose firm guided the Zoo's development through 1905 (fig. 10). Olmsted sought to contain the buildings of the Zoo to a peninsula-like plateau in the park, leaving a wide swath (where the sea lions and seals in Beaver Valley are today) of the park's 160-plus acres as natural woodlands. Initial structures and paddocks followed this plan, clustering the buildings together but expediency soon upended this philosophy. One such intrusion on the pristine landscape was the flight cage of 1901.[161]

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located to the left (southwest) of the stairs in the south corner, through double doors. Today the area resembles a storage closet with a portion of the space partitioned off with expanded metal (mesh). Faulkner, Fryer and Vanderpool Architects, 1974, NZP.

[159] W.M. Mann, Director, to Louis A. Simon, Supervising Architect, 26 February 1936, National Zoological Park, Bird House, General Correspondence and Related Records, 1910-39, Public Buildings Service, RG 121, NACP.

[160] Helen L. Horowitz, "The National Zoological Park: 'City of Refuge' or Zoo?" *Records of the Columbia Historical Society of Washington* (1973-74): 405-29; Farrell, 33-34, 37, 51-52; *Annual Report of the Board of Regents for the Smithsonian Institution... 1891*, 48-51. Also, http://nationalzoo.si.edu/AboutUs/History/hornaday.cfm, accessed 14 April 2010.

[161] Ibid. This flying cage was demolished in 1975. It was in approximately the same location as the Asia Trail bridge is today.

As early as 1897 the Zoo sought funding for suitable housing for its collection of birds, and noted they should have a "spacious flying cage like that in [San Francisco's] Golden Gate Park."[162] In 1900 a temporary bird house was fashioned out of a small, wood frame shelter. Outside cages and bathing pools were added. In 1901 construction on a true, but still impermanent, house for birds started. The temporary bird house was designed by the architectural firm Hornblower and Marshall and became much-needed housing for birds in the winter months. Each cage inside the bird house had a skylight.[163] The following year the temporary bird house was expanded, and parrots moved in. Also in 1901-02 a dome-shaped flight cage (158' x 50' x 50') was built. The cage was done under the supervision of the architect Glenn Brown.[164] The location of the cage, however, was problematic. It was away from the other buildings, including the temporary bird house, and from the perspective of Langley and the Olmsted Brothers, ruined the landscape. Plans to transport the cage to another site were thwarted by the costs involved and by the arguments of W.H. Blackburne, the Zoo's first keeper. Blackburne pointed out that the spot selected by Olmsted would put the birds by the already-reduced in size buffalo enclosure, isolate the birds from their adoring public, and jeopardize their health because of the cold and damp and frequent overflow of water during rains. He, mercilessly, reminded his supervisors at the Zoo that an elephant quartered in the same area had died from an ailment contracted there.[165] The flying cage stayed where it was.[166]

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[162] *Annual Report of the Board of Regents of the Smithsonian Institution... 1897*, 23-24. Quotation, 24.

[163] "Hornblower and Marshall, 1900," August 1900-October 1901, file in 06-225 Office of Architectural History and Historic Preservation, Building Files, box 48, SIA. A drawing of the bird house by Hornblower and Marshall is on file at SIA; see Building Series 9, items 83-129, National Zoological Park, negative number 89-15947. The 1903-addition (50' x 35') appears to have been erected for the parrots, to give them winter quarters. It cost $567. The extension terminated in a single cage (20' x 35') completed with pools and trees. The building was expanded in 1905. The Hornblower and Marshall bird house was taken down in 1929-30. It was where the Reptile House is today. Sybil Hamlet, "History of Zoo Construction, 1891-1967," prepared May 1968, 06-225 office of Architectural History and Historical Preservation, Building Files, box 51, SIA; Hamlet's list differs slightly from that prepared by Tim Hanson (n.d.) but both depend, in part, on the *Annual Reports*. Hanson's enumeration can be found in 06-225 Office of Architectural History and Historical Preservation, Building Files, box 49, SIA.

[164] [Frank Baker] to Glenn Brown, 20 June 1901, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA; *Annual Report of the Board of Regents of the Smithsonian Institution... 1902* (Washington, DC: GPO, 1903), 74. The 1901 *Annual Report* noted that construction had started and that the Zoo hoped to supply running water to the cage with the idea that "herons and other aquatic species may nest within its limits." It was completed by the time of the following *Annual Report*. Fifty birds were living in the cage. In 1913-14 the guard rail was rebuilt and the ground level of the flight cage was reinforced to keep predators out of the flying cage (previously some had gotten into the cage and the birds could not escape from harm). *Annual Report of the Board of Regents of the Smithsonian Institution... 1901*, 106; *Annual Report of the Board of Regents of the Smithsonian Institution... 1914,* 83.

[165] Superintendent [Baker] to Secretary Samuel P. Langley, 6 March 1902; Secretary Langley to Superintendent Baker, memorandum 1 March 1902; W.H. Blackburne to Frank Baker, 26 February 1902; F.W. Hodge to Frederick Law Olmsted, Jr., 3 January 1902; Frederick Law Olmsted, Jr., to Samuel P. Langley, 10 April 1902; 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49-50, SIA. Olmsted Brothers continued to counsel Langley on the Zoo, something Langley most likely pursued with even greater enthusiasm after the (mis)placement of the cage. Frederick Law Olmsted, Jr., reassured Langley in May 1902 that he "note[d], and shall bear carefully in mind, your instructions that the park is intended to be first of all the site of a large and comprehensive zoological collection, and I shall shape my advice with a view to securing the utmost landscape interest and beauty that can be developed from the successful arrangement of the natural conditions to meet that primary purpose. I will at once communicate with Dr. Baker [...] and will arrange for a general discussion of the problem with him on the ground early in June." Olmsted to Langley, 27 May 1902, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. Olmsted also wrote that he discounted Blackburne's objections, excepting that regarding the health of the animals, which implies he thought Baker was behind it. Olmsted to Langley, 10 March 1902. Olmsted hoped that the cage could be redesigned to be more inconspicuous, so attention would focus on the birds rather than on their container. He

Other flying cages were constructed, but few with the fanfare of the 1903 flight cage for the St. Louis expedition, but their presence affected the landscape of the Zoo nonetheless (figs. 11-12).[167] The 1903 flight cage – an extensive exhibit of birds in an area where they could fly around – was selected to represent the National Zoo at the fair. The design for 228' x 84' x 50' cage was a concept of Baker's but its construction was entirely in the hands of the Supervising Architect of the Treasury. Costs were estimated at just over $17,000. At the time, it was believed to be the largest of its kind ever built. An arched passageway ran the length of the cage. Here, people walked through the exhibit, which was divided into two sections. One held the larger-sized birds (gulls, geese, trumpeter swans, flamingoes, spoonbills, ibis, heron, cranes, pelicans, darters, cormorants, curassows, and vultures), and the other provided a haven for smaller species (quails, partridges, doves, ducks, canaries, blackbirds, jays, thrushes, sparrows, bullfinches, goldfinches, weaver birds, linnets, cardinals, and orioles). The flesh-eating birds gobbled, on average, forty pounds of fish and five pounds of meat per day. Baker anticipated that this cage would be dismantled after the world's fair and sent to the National Zoo. Thus, since he probably was still smarting from the furor over the placement of the great flight cage, Baker solicited advice from the Olmsted Brothers. Baker suggested a location near the lower end of the park because of the level ground. He said there would be a path around the perimeter and a 16' walkway through the cage. Mesh netting covered the walls of the passage and formed the exterior walls of the cage. The birds would have trees and water inside the flight cage.[168] Despite his planning, Baker's flight cage remained in St. Louis.

Also in 1902 to 1903, albeit eclipsed by the disagreement over the location of the Zoo's first great flight cage and the excitement over the flight cage for St. Louis, a cage for the eagles was constructed in the park.[169] This cage measured 50' x 27' x 35' and contained a pool, a tree, and a small mound of rocks. The eagles received improved quarters in 1932 when this cage was taken down to make room for the Reptile House. The new eagle cage was a destination along the wetlands boardwalk leading to the Bird House until a fire in

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objected to the trussed ribs, describing it in his notes as "an unfinished steel trussed structure … like a small train-shed, heavier and less agreeable than that at the New York Zoo."

[166] The flight cage had wood shelters. These were replaced in 1952 with shelters made of brick and concrete. *Annual Report of the Board of Regents of the Smithsonian Institution… 1952*, 106.

[167] These cages received an unfavorable review in the mid to late 1960s. At that time the outdoor cages (unless large) were all to connect to a shelter or built against a wall so that the cold winter winds could be broken or blocked. The birds were not supposed to live with constant drafts. The typical cage, meaning the high round cage with netting all around the sides and with a dark roof, was all wrong, and recognition of this evolution in design of bird habitats must have contributed to a revision in the plans for the exterior cages at the Bird House under Faulkner, Fryer and Vanderpool. Report, 20 March 196[4 or 7], 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[168] Frank Baker to Frederick Law Olmsted, Jr., Brookline, 4 June 1903, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA; *Annual Report of the Board of Regents of the Smithsonian Institution… 1904* (Washington, DC: GPO, 1905), 27, 102-03. Baker's dimensions differed slightly from those provided by the *Annual Report*. Baker wrote that the cage would be 235' x 83' x 50'. Also, while the *Annual Report* credited the Superintendent with the design, Hornblower and Marshall provided a sketch of a flight cage in 1902. This sketch can be found in 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

[169] A photograph taken in 1903 of the golden and bald eagle cage can be seen on-line: http://siarchives.si.edu/history/exhibits/historic/15534.gif; this cage is also noted on a 1902 map and was placed in the vicinity of the temporary bird house. Wm. H. Benton, Civil, Top'l and Landscape Engineer, Atlantic Building, Washington, DC, "National Zoological Park," Map 1902, copy on file, RU 365 NZP Office of Public Affairs, 1805-1988, box 35, SIA; also, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

2004.[170] During the clean-up efforts after the fire, the eagle cage was torn down. Presently eagles are housed in the valley east of the Bird House.[171]

Other cages erected in the park included those for parrots, a gift in 1912, three flight cages for hawks, owls, and Australian grass paroquets in 1922-23, and another large flight cage in 1927. The parrot cage stood through 1960 its spot near the first great flight cage; it was gone by 1970.[172] The three smaller cages, and the flight cage of 1927, had been replaced by a building with public amenities by 1980. In 1913, ostriches were housed between the small mammal house and the lion house, but some years later, gibbons had taken over the ostriches' former exhibit area.[173] In 1972 an exhibit for birds of prey was begun, in a woodland area, and around the Bird House, the outdoor cages and yards were re-worked during the 1960s and 1970s.

The space around the Bird House, severely graded for a large plaza in the late 1920s and filled behind, gradually became home to the outdoor exhibits. Flight cages from different areas of the park were relocated in one central place in the vicinity of the new building. For example, the eagle cage was to the northwest of the front plaza, while paddocks for ostriches, rheas, emus and cassowaries were situated to the back of the building. The siting of the yards even accounted for the planned addition (built in 1935-37). [174] Once the Bird

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[170] The excavation and change in grade for the construction of the Bird House left a large concrete plaza to the northwest (front). Director Mann suggested having a fountain, but this idea was nixed by Assistant Secretary Wetmore who conceded that the "idea of breaking up the cement plaza before the entrance of this house is excellent, …" Wetmore recommended an island of shrubbery and barberry, rather than the fountain/pool which could not be open year-round due to weather and which would need a fence to keep children from falling in. Aquatic birds also needed pools. Wetmore left the details of the shrubbery and "the form and size of this opening" to the architect. Wetmore to Mann, 11 March 1929, RU 74 NZP, 1887-1965, box 125, SIA and 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. This plaza would give way to ponds and ultimately to the wetland exhibition seen today.

[171] In December 1932 Zoo Director William Mann proclaimed, "Developments at the National Zoological Park during the past year have been chiefly in a small way. However, the great flight cage with artificial cliff background for the eagles was completed early in the summer and the eagles and other large birds of prey installed. This cage is one of the finest in the world and unique in design and has occasioned a great deal of favorable comment." W.M. Mann, Director, to Dr. C.G. Abbot, Secretary, 5 December 1932, 06-225 Office of Architectural History and Historic Preservation, Building Files box 49, SIA. The present exhibit is likely that discussed in 1972, for predatory birds; it was to be placed in a "dramatic part of the woodland portion of the park." Reed to Ripley, 22 May 1972.

[172] Farrell, Map, "Zoo Development, 1960-71." The parrot cage held twenty specimens of cockatoos, macaws, and parrots – some twenty-eight birds in all. It was a gift of John Henderson, who visited the Zoo and commented on the need for a parrot cage. When he learned no funds were available, he paid for the cage himself. The cage was 26' in height. It had a steel framework and was covered in a string wire netting. Once the birds were installed, Baker observed that they seemed to enjoy their freedom of movement. Unfortunately, they still needed winter quarters; five of the twenty-eight died due to exposure. Frank Baker to Richard Rathbun, Acting Secretary, 28 June 1912; Frank Baker to J.B. Henderson, Jr., Washington, DC, 18 October 1912; Superintendent [Frank Baker] to Charles D. Walcott, Secretary, 31 January 1913; and [Sybil] Hamlet, "The Beatrice Henderson Mystery," *Zoogoer* 9, no. 5 (September/October 1980), 13-14, copies on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA, and RU 365 NZP Office of Public Affairs, 1805-1988, box 35, SIA; *Annual Report of the Board of Regents of the Smithsonian Institution… 1913* (Washington, DC: GPO, 1914), 32, 84.

[173] Farrell, Maps, "Zoo Development, 1960-71," and "Zoo Development, 1971-80." Also, *Annual Report of the Board of Regents of the Smithsonian Institution… 1913*, 84. There were yards for ostriches in the park as early as 1905, however. The 1927 flight cage measured 30' x 60' x 30' and was in the ravine below the great flight cage. It housed gulls, terns, ibis, and water birds.

[174] W.M. Mann to Dr. C.G. Abbot, 5 December 1932, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA. Construction of the exterior cages appears to have been a separate contractual program

House was complete, future plans and remodeling of the structure and its surroundings kept the birds in or near their first permanent home in the National Zoo (figs. 13-14).

Part III. Sources of Information

A. Architectural drawings: Copies of several of the original drawings for the Bird House and Flight Cage(s) are on file at the National Zoo and in the Smithsonian Institution Archives. These include the temporary bird house designed by Hornblower and Marshall around 1901-02, a proposal by Glenn Brown in 1912, Albert Harris's designs of 1927, and Edwin Clark's designs of 1935.

B. Early Views: The Smithsonian Institution Archives (SIA RU 95) has several undated photographs of the Bird House; these appear to date to the time of the 1930s expansion. There are also three photographs in the *Washington As It Was: Photographs by Theodor Horydczak, 1923-1959* collection at the Library of Congress, and several images documenting the progression of construction under the Public Works Administration. The PWA images are housed at the National Archives (RG 121-BCP box 141) although Xerox copies can be found in the Zoo files at the Smithsonian Institution Archives. Also in the National Archives are photographs from the 1940s, taken to illustrate life during the war years (RG 208-LU) and several from the same time period in the records of the Commission of Fine Arts (RG 66). The last are available on microfilm (66-G-23D2). Noted photographer, Frances Benjamin Johnston (1864-1952), took several pictures of the National Zoo in the late 1890s. Generally her photographs were views of the landscape but two include exhibits of aquatic birds, such as the waterfowl ponds, and another shows a small bird cage. The Frances Benjamin Johnston photograph collection is housed in the Prints and Photographs Division of the Library of Congress. Another collection, donated to the Library of Congress in the 1940s, is the National Photo Company Collection; in this collection there are also several pictures of bird exhibits as they appeared in the first quarter of the twentieth century.

C. Bibliography:

1. Repositories

American Institute of Architects, Washington, DC
The library and archives maintains biographical files of the Institute's members, including Albert Harris, Edwin Clark, Joseph C. Hornblower, and J. Rush Marshall, as well as books and periodicals befitting an architectural research collection. In addition, because of his connection to the AIA, the archive has a collection of papers belonging to Glenn Brown. The architect's papers include some correspondence relating to his work at the National Zoo.

D.C. Office of Public Records, Washington, DC
The Municipal Archives has records for architects in the District of Columbia from 1925 to 1967, years which encompass Albert Harris's work on buildings for the National Zoo as well as the WPA years and the DMJM renovations. However, the only materials on file for Harris are those relating to his application for registration to practice architecture in DC in 1925.

Hagley Museum and Library, Wilmington, DE

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rather than under the umbrella of the building construction. The Municipal Architect's office drew up the plans and specifications and the call for proposals was advertised in 1928. In December 1928 Bahen and Wright, Contractors, were selected for the job by the Zoo. Director to Dr. C.G. Abbot, 1 October 1928; and correspondence between Bahen and Wright and Dr. Mann, November 1928; copies on file, 06-225 Office of Architectural History and Historic Preservation, Building Files, box 49, SIA.

Because of Domenico Mortellito's long association with DuPont (1945 to the late 1960s at least), the Hagley Museum and Library has a photograph collection (1939-64) and a collection of some of Mortellito's papers (1950-79). Although these primarily relate to his work for the DuPont Company, the collections offer insight into his career as an artist and his success in developing and working in new mediums, something that began during the years he worked for the WPA. In the Bird House, Mortellito used the lacquered linoleum and rubber-based paint, and his work on the restaurant coincided with an exhibition of his carved linoleum at the Modern Museum of Art and his decoration of several pavilions at the 1939 World's Fair in New York His pavilion for DuPont included the "first wall decorations to be made of Lucite, Plastacele and other plastics." Mortellito produced murals and trade show exhibits as well as DuPont product symbols "Mr. Neoprene" and "Mr. Teflon." He also designed the millstone memorial commemorating DuPont's 150th anniversary and designed the company pavilion at the 1965 World's Fair. After his retirement from DuPont, Mortellito continued to work with synthetic materials to create murals and sculptures. These details on Mortellito, in the context of DuPont, were gleamed from the biographical information provided in the Hagley Museum and Library catalogue.

Historical Society of Washington, Washington, DC
The Kiplinger Library maintains collections of photographs and maps, manuscripts and artifacts, and books, pamphlets, periodicals, and ephemera that together represent 200-plus years of Washington history. The library also has clipping files on various sites and subjects in Washington, including the National Zoo, and relating to the city's evolution over time. Copies of the journal *Washington History* (formerly *Records of the Columbia Historical Society*) are also available here.

Library of Congress, Washington, DC
The library offers a variety of primary and secondary source material, including various photographs, maps and surveys of Washington and a collection of papers from the Olmsted Associates.

Martin Luther King, Jr., Memorial Library, Washington, DC
MLK, the central branch of the DC Public Library system, maintains clipping files on Washington-area subjects in the Washingtoniana Collection; here too are photograph and map files, microfilm copies of the *Evening Star and Washington Post* newspapers, copies of census records, and city directories. Particularly useful for the early period of the Zoo are the copies of several atlases or plat maps of the city dating from 1856-59 through 1903.

National Archives and Records Administration, College Park, MD
Textual records contain papers relating to the establishment of the National Zoological Park and the acquisition of property in the 1890s. Photographs of the National Zoo are also available in the records for the Commission of Fine Arts (RG 66), Public Building Service (RG 121-BCP), and Office of War Information (RG 208-LU); one map is on file in the architectural and cartographic reading room (RG 66). There are drawings for the restaurant, small mammal house, and pachyderm house from the 1930s in the Public Building Service records but none for the Bird House. Records relating to TRAP include photographs of the artists' work (RG 121-TR) and some correspondence (RG 121, entry 133). Records relating to the contract and construction tracking sheets issued by the Treasury during the 1930s are also in the textual records for the Public Buildings Service (RG 121).

National Archives and Records Administration, Washington, DC
Textual records for the Commission of Fine Arts, such as project files, are kept in the National Archives Building (NAB). These files include supplemental information to the Commission meeting minutes, and sometimes include sketches or plans referred to in the minutes.

Office of Public Records/DC Archives, Washington, DC
Although many of the records for the District of Columbia (including building permits) are kept by the National Archives for the years up to 1973, the Office of Public Records has case files regarding the licensing of architects (1924-65), including documents for Albert Harris; maintains minutes of the Board of Architects (1925-89); central classified files for the engineer department (1897-1953); and minutes of the DC Commissioners (1953-67). The DC archives does not have a collection of papers of the Municipal Architect(s), however.

Olmsted Archives, Olmsted National Historic Site, Brookline, MA
While the bulk of the Olmsted firm's correspondence has been transferred to the Library of Congress, records maintained at the Olmsted Archives for job #2822 (the Zoo) include fifty-one plans and drawings, dating to 1889-1905; one file of planting lists, 1893-99; one file of correspondence, 1972-73; and one photograph album, 1892-1910.

Smithsonian Institution Libraries and Archives, Washington, DC
The Smithsonian libraries are located within the various museums to provide curators and researchers with on-site reference materials directly relating to their subject and area of study. Each library maintains special collections, secondary sources, pertinent journals, reports, and images, or other archival material, as appropriate. Files on artists, such as Stephen Haweis, Domenico Mortellito, and Elizabeth Fulda, are available through the Smithsonian American Art Museum (SAAM) Library. The archive has the papers, reports, scrapbooks, drawings, and photographs relating to the history of the Institution, including that of the Zoo. Files of the Office of Architectural History and Historic Preservation have also been accessioned; they include copies of various research papers, studies, assessments, and annual reports relating to the Zoo and the Bird House in particular. The Zoo maintains administrative files on site. Copies of the drawings by Albert Harris and copies of the drawings for the addition by Edwin Clark are available on site as well.

2. Selected Maps

Baist, George Williams. "Baist's Real Estate Atlas Surveys of Washington, District of Columbia. 3 vols. Philadelphia: 1903. (Vol. 3, plate 18) Washingtoniana Collection, DCPL.

Boschke, A., C.E. "Map of Washington City, District of Columbia, Seat of the Federal Government." Survey and Map, 1857. Lithograph by J. Bien, New York. Library of Congress. (copies also in the Washingtoniana Collection, DCPL, and in the collections of the Historical Society of Washington)

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Gedney, A.G., preparer. "Map Showing a Bird's Eye View of the City of Washington and Suburbs..." B.H. Warner and Company. Map, ca. 1886. Library of Congress.

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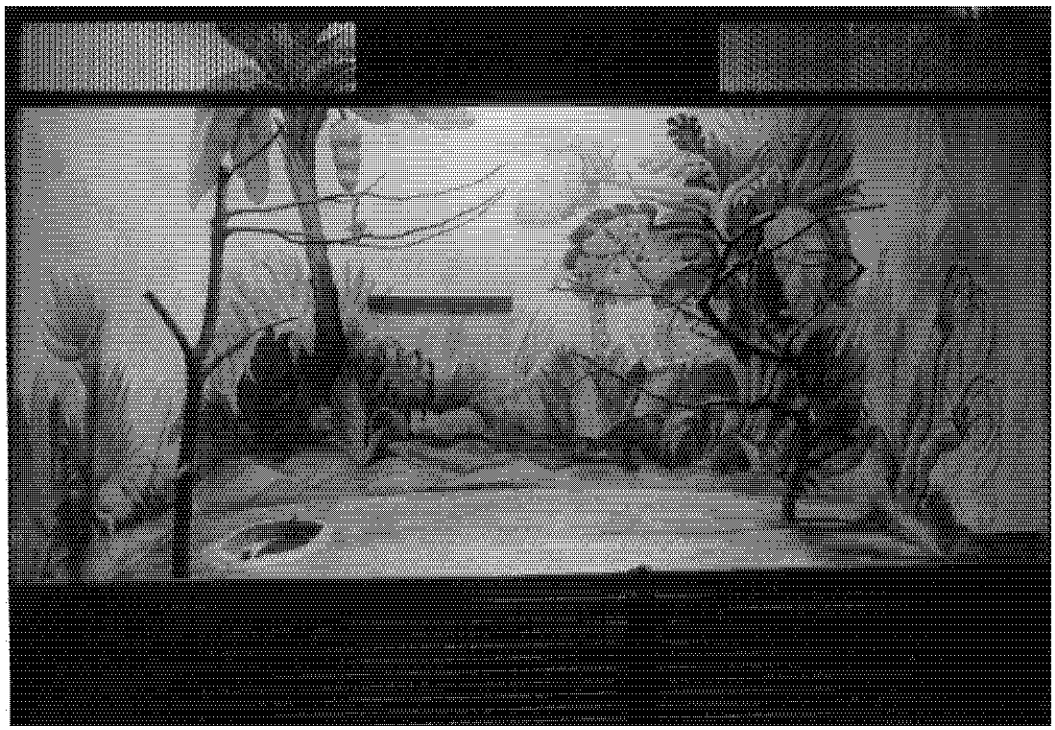
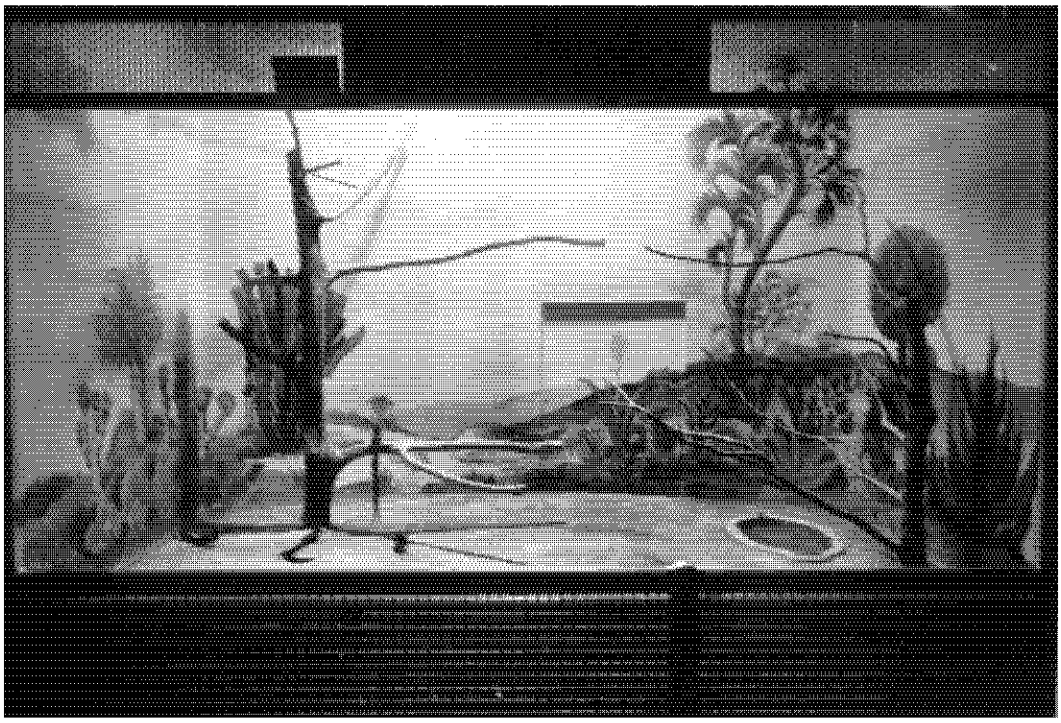
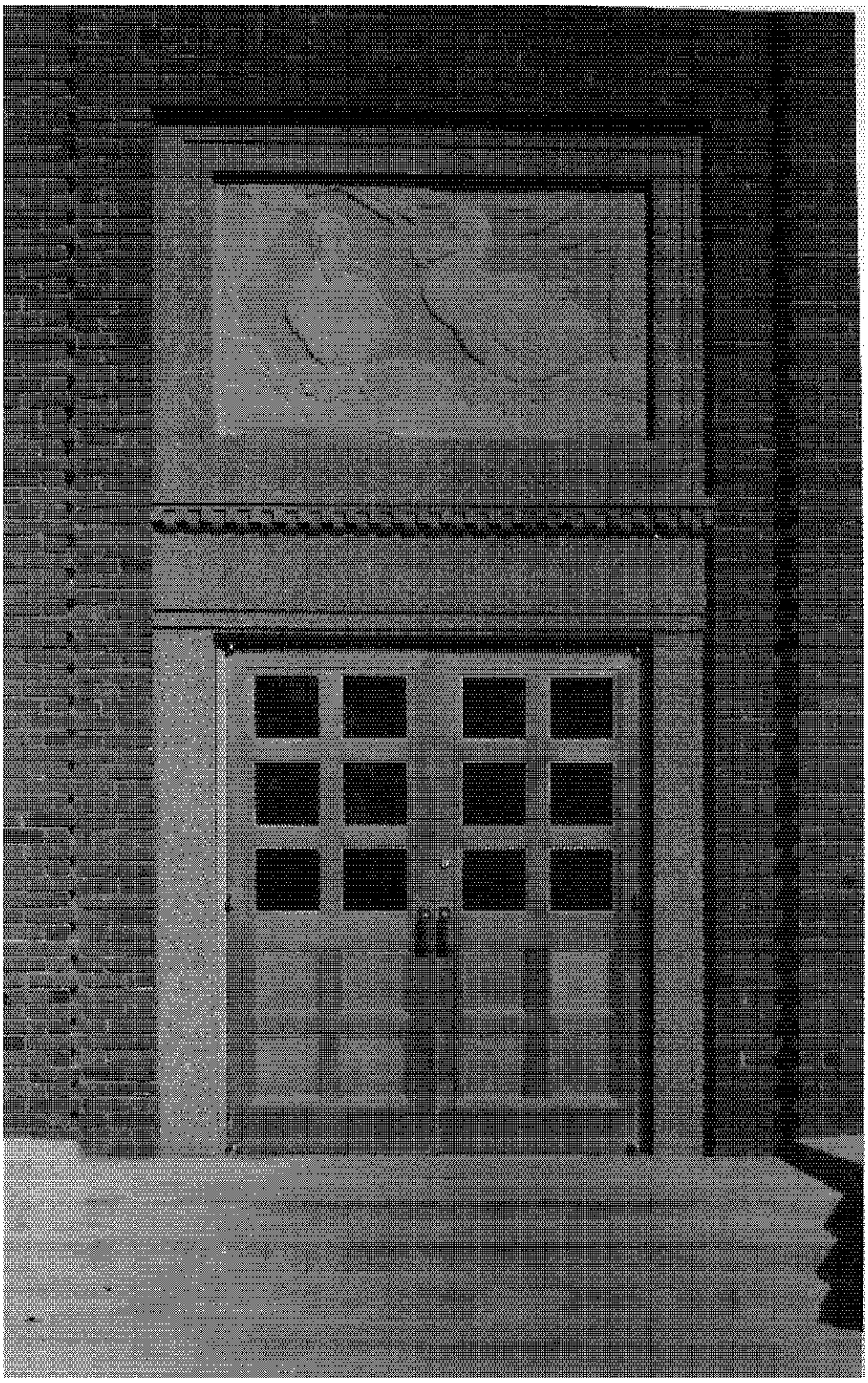
"Survey Report, National Zoological Park, Washington, D.C." August 1958.

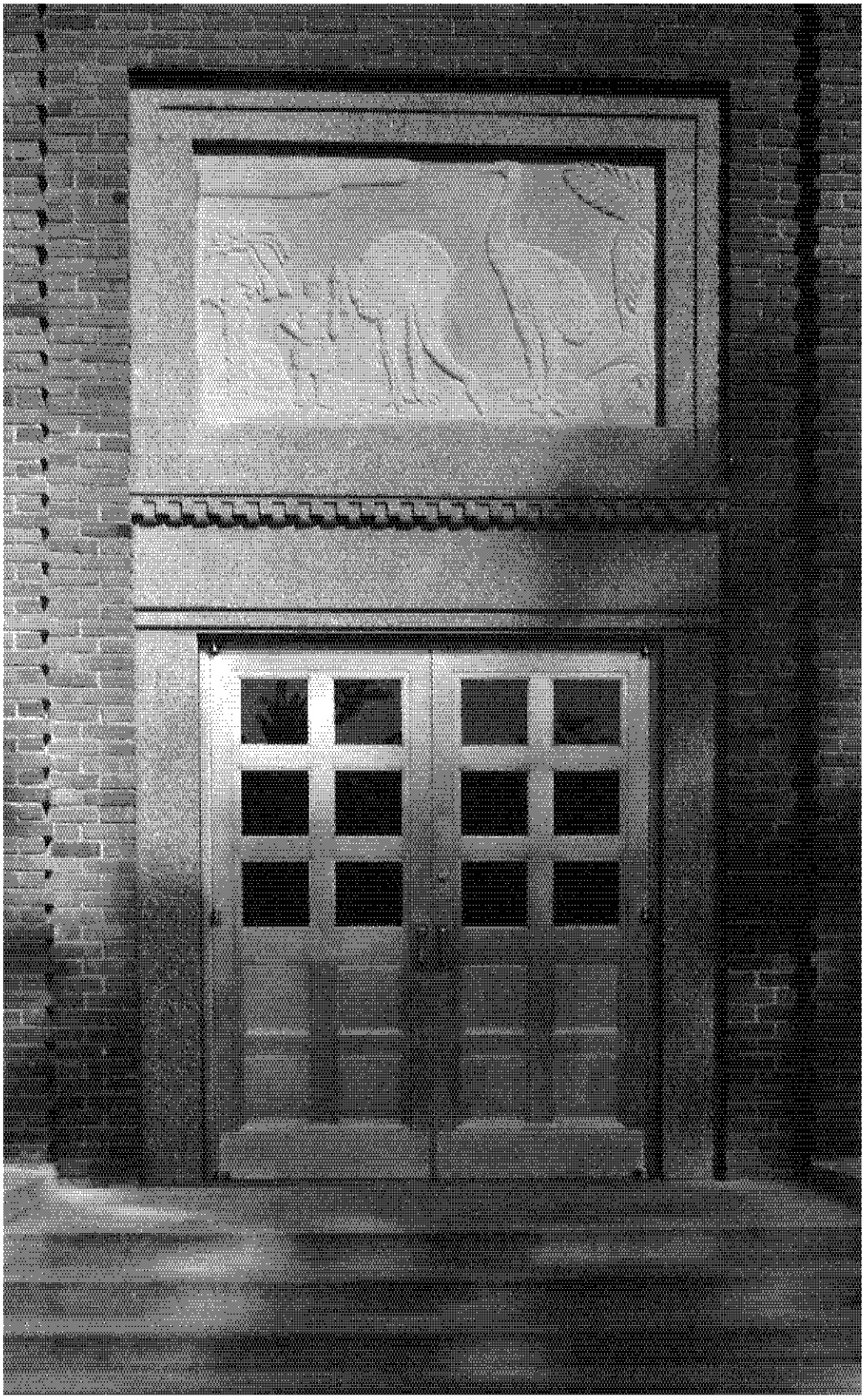
Figures 1-2. Murals painted by Domenico Mortellito in the Bird House. Photographs courtesy of the Treasury Department Art Projects (Mortellito, Records of the Public Buildings Service - Treasury Relief Art Program, 1935-39, RG 121-TR, NACP).



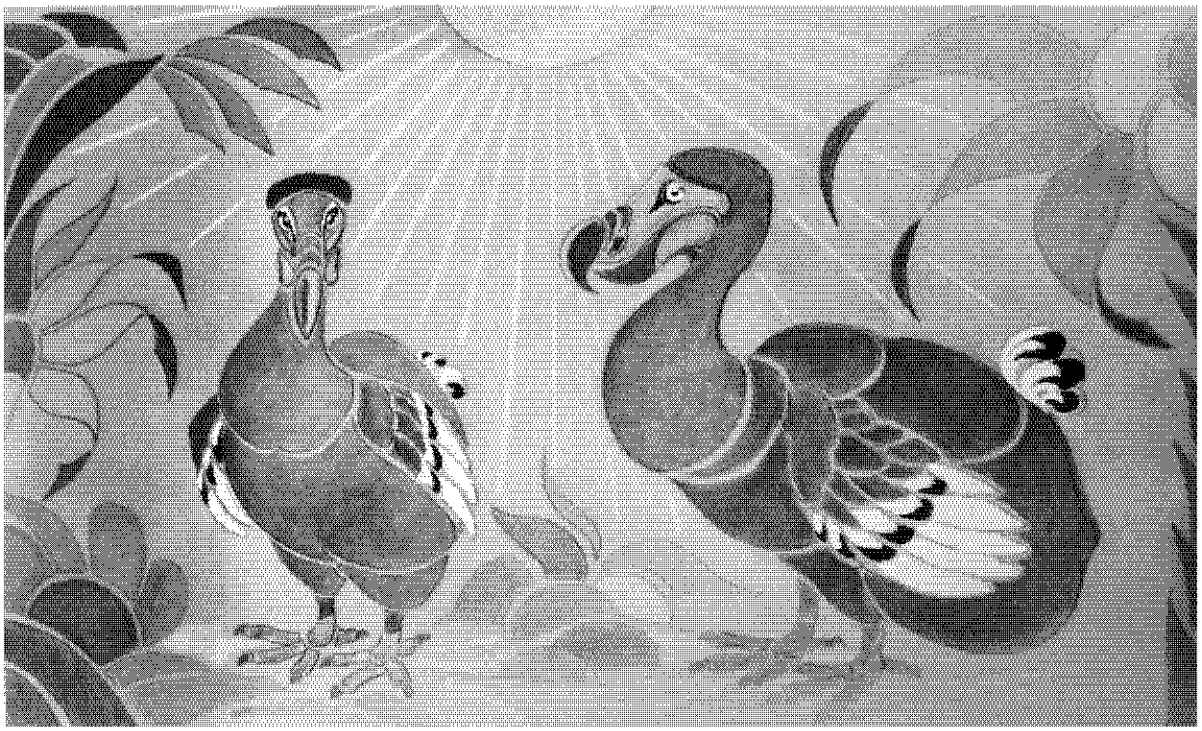


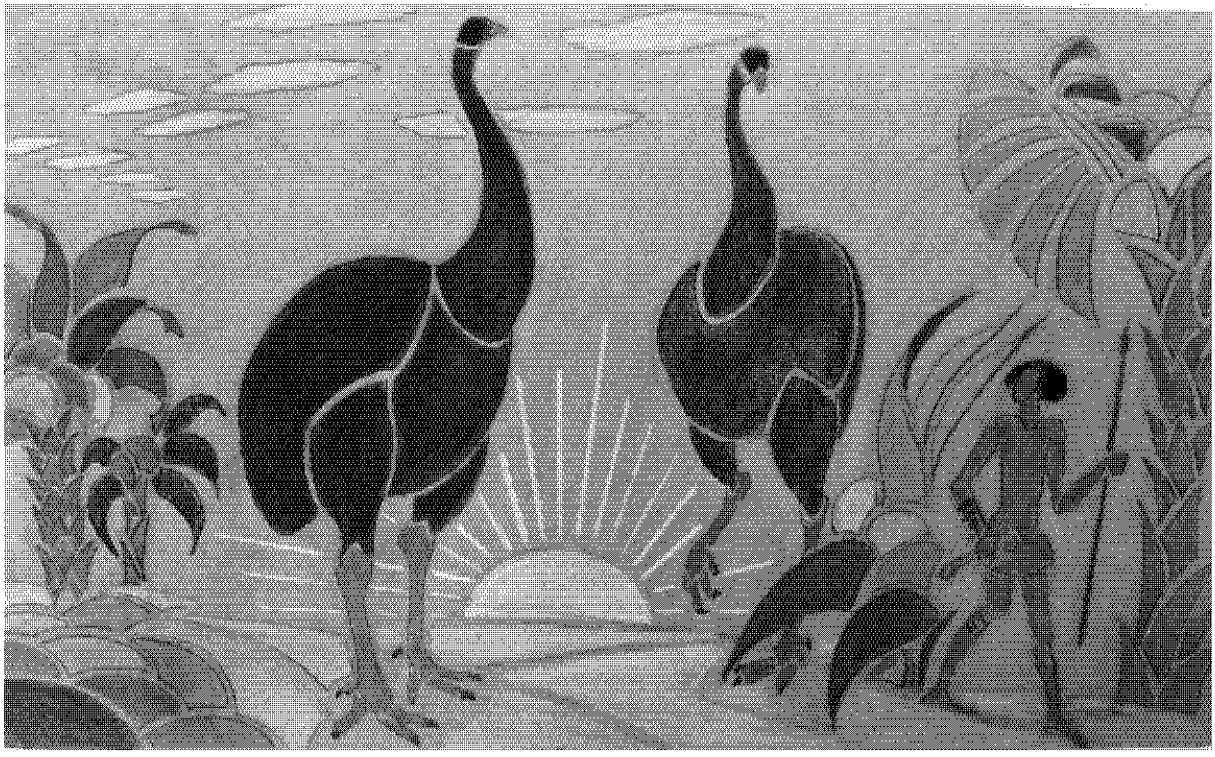
Figures 3-4. Exterior doorways in the 1930s addition to the Bird House; today only the panels are in-situ. Photographs courtesy of the Treasury Department Art Projects (Mortellito, Records of the Public Buildings Service - Treasury Relief Art Program, 1935-39, RG 121-TR, NACP).



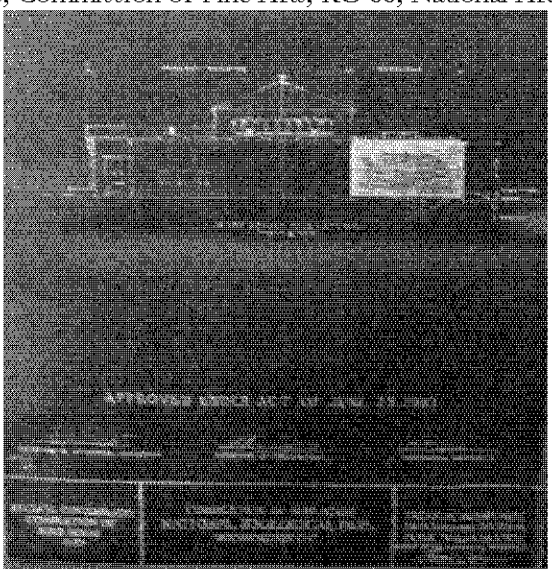


Figures 5-6. Photographic copies of the sketches submitted by Elizabeth Fulda, Pencil drawings are filed with the records of the Commission of Fine Arts, NAB, and these photographs with the TRAP files, NACP. Photographs courtesy of the Treasury Department Art Projects (Fulda, Records of the Public Buildings Service - Treasury Relief Art Program, 1935-39, RG 121-TR, NACP).





Figures 7-8. Copies of the Photostat drawings presented to the Commission of Fine Arts in 1935 for approval. The drawings illustrate the addition to the Bird House, a wing planned as part of the original building and then eliminated as the project was scaled back in 1927-28. Courtesy of the National Zoological Park, Bird House, Project Files, Commission of Fine Arts, RG 66, National Archives Building (NAB).



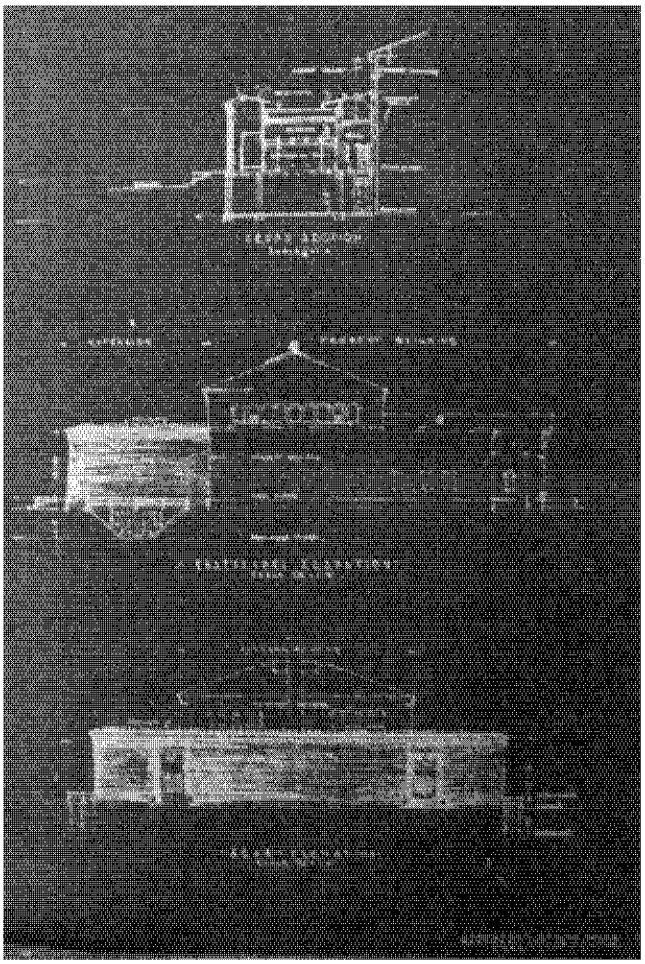


Figure 9. "A Class at the Zoo – The Bird Cage" was taken by Frances Benjamin Johnston around the turn of the century. Photograph courtesy of the Frances Benjamin Johnston Collection, Prints and Photographs Division, Library of Congress (Lot 2749, no. 275, b/w film copy negative LC-USZ62-4554).

Figure 10. Preliminary Study for the National Zoo by the Olmsted firm. Copy of courtesy of the National Park Service, Frederick Law Olmsted National Historical Site.

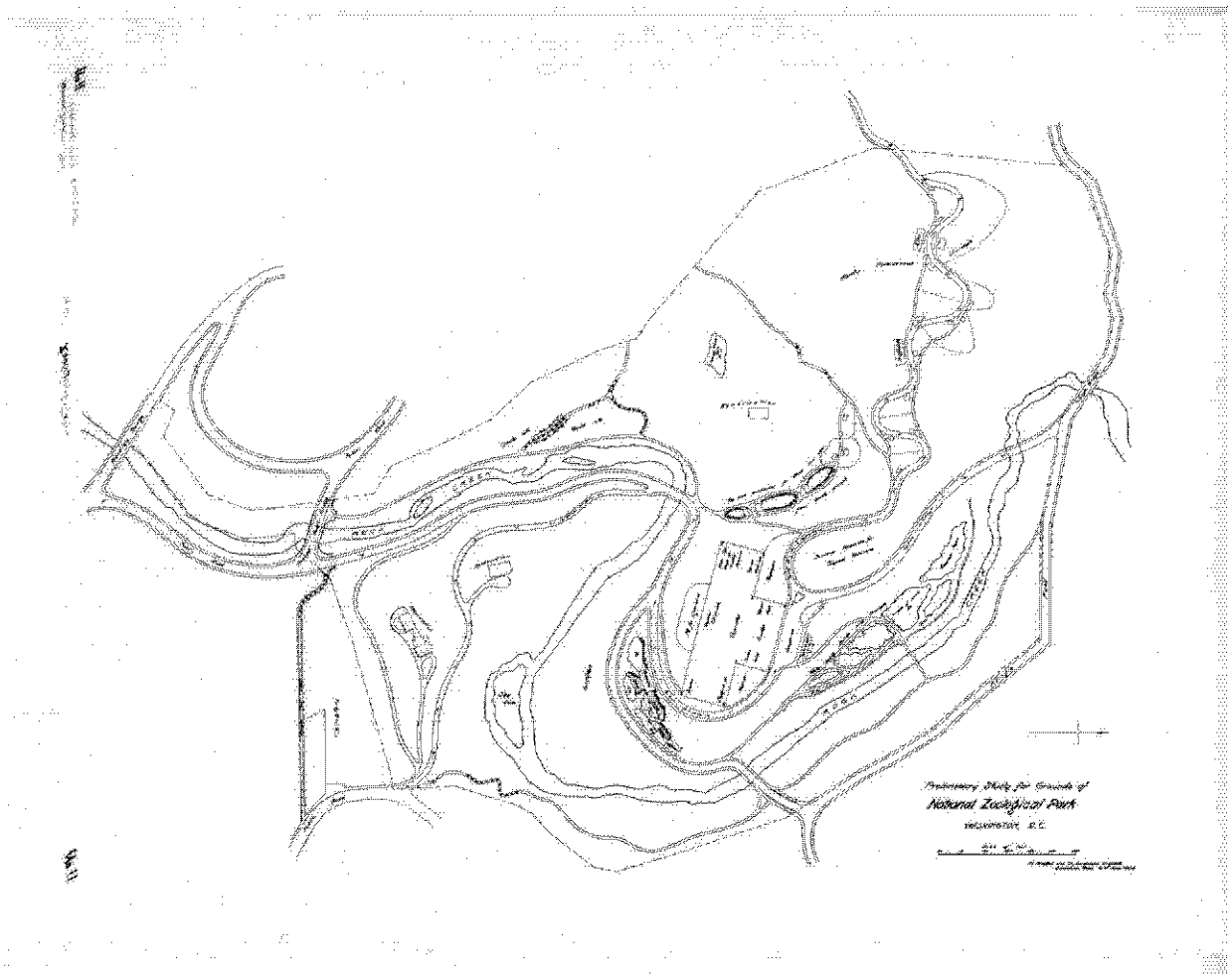
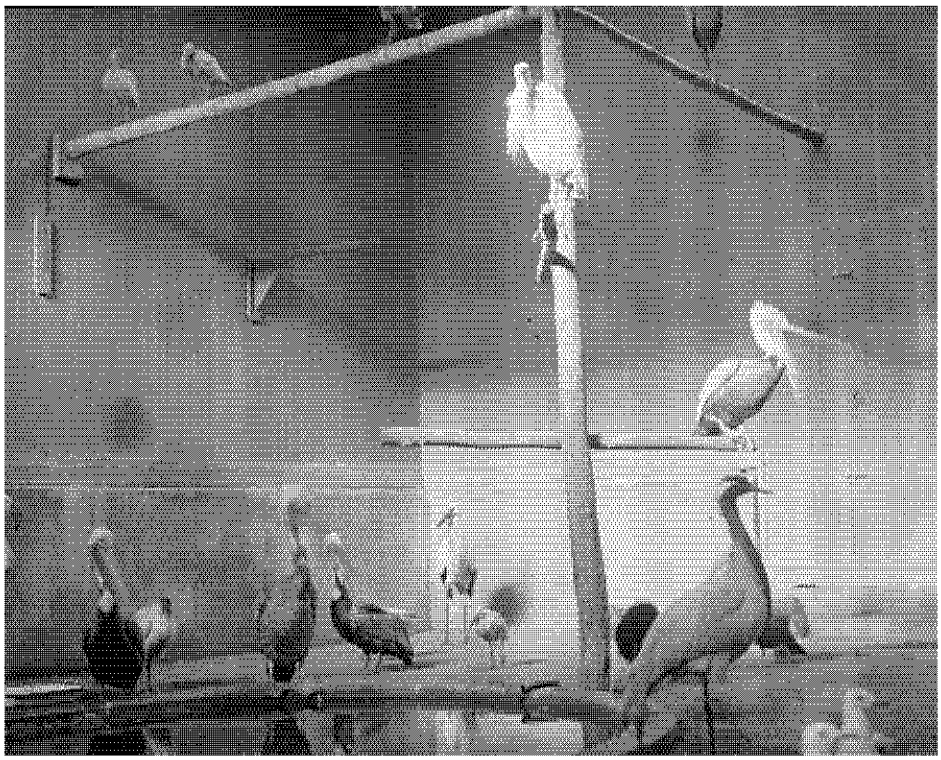


Figure 11. Ca. 1920 view of the Great Flight Cage in the Zoo. Note the domed top and mesh covered frame. Photograph courtesy of the National Photo Company Collection, Library of Congress (LC-F8-39550).

Figure 12. View of an indoor cage, 1926. Photograph courtesy of the National Photo Company Collection, Library of Congress (LC-F8-1496).



Figures 13-14. Views of the panels drawn by Elizabeth Fulda and carved by Domenico Mortellito are largely obscured by the outdoor habitats today. These color images were taken during the field recording for the HABS documentation project in 2010.